Final report for Defra

Research on the relationship between well-being and sustainable development

Paul Dolan*, Tessa Peasgood
Tanaka Business School, Imperial College London

Andy Dixon, Melanie Knight, David Phillips, Aki Tsuchiya, Mat White
Centre for Well-being in Public Policy, University of Sheffield

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* Corresponding author: Paul.Dolan@Imperial.ac.uk

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EXECUTIVE SUMMARY

The UK Government's sustainable development strategy, 'Securing the Future', commits the Government to a clearer focus on well-being. The strategy identified the need to ensure that well-being issues are tackled consistently, in the right way, and that the Government is genuinely making a difference to people's lives.

Against this background, the project specification asked for a think-piece that would explore the relationship between well-being and sustainable development.

In order to address this issue, there are three stages of research:

1. A review of the relationship between well-being and sustainable development which will also serve to clarify some of the key concepts that will feed into the two empirical stages that follow
2. A questionnaire to explore what stakeholders think and to provide insights into how best to explore the relationships between well-being and sustainable development in the workshop that follows
3. A workshop to bring together experts to focus on key questions about the possible synergies and tensions between different concepts of well-being in a sustainable development context

For the purposes of this report, we distinguish between four main accounts of well-being:

1. Objective lists – based upon objective criteria, such as education level
2. Preference satisfaction – based on fulfilling our desires
3. Flourishing accounts – based on the satisfaction of certain psychological needs
4. Subjective well-being – a combination of the hedonic account, based on how we feel, and the evaluative account, based on how with think and feel about our lives

The literature on sustainable development has tended to identify two strands:

1. 'Environmental' sustainability – related to the use of the world's natural resources
2. 'Justice-focused' sustainable – emphasises costs and benefits within and across generations

From the literature, the questionnaire and the workshop, there was a lack of common understanding about these conceptual differences. It is easy to find many examples of where well-being and sustainable development can complement one another and many cases where they will be conflict.

Only by having a common set of definitions about these concepts is it possible to meaningfully discuss the synergies and tensions between them. The diverse array of definitions provided in response to our questionnaire highlights the need to ensure that coherent definitions of concepts permeate through academic, policy and practitioner sectors.

There is the need for more theoretical research into the conditions under which the different accounts of well-being are consistent with one another and more is needed in

relation to the conditions required for the different accounts of sustainable development to be consistent with one another; that is, what is needed for them to produce the same conclusions and policy implications?

At the heart of any concept of well-being in the context of sustainable development policy must lay the ability to identify and quantify the trade-offs that exist between:

1. Elements of an individual's current well-being
2. Her current well-being and her well-being in the future
3. Her current well-being and the current well-being of other people
4. Her current well-being and the well-being of others in the future

How well-being will be conceptualised by policy-makers will ultimately turn on their normative judgements about the implications that follow from these various trade-offs.

Objective lists and most flourishing accounts do not consider possible trade-offs between elements of well-being once those elements have been specified and this limits their usefulness in applied policy settings. Moreover, it is not at all clear that a consensus exists about what should be on the list of objective goods or psychological needs even if the potential trade-offs between them were recognised in policy contexts.

As things stand, it seems that what people want, as expressed through their market behaviour, is not conducive to sustainable development. However, people may actually have 'latent' preferences for both environmental and justice-oriented sustainability that are not reflected through the market. When well-being is measured in terms of income, it appears to conflict with sustainable development but fully accounting for all preferences (e.g. for endangered species, clear air, social justice etc.) would reduce the conflict.

Changing people's preferences as they reveal them may be a key way forward. One way to do this would be to adopt policy defaults which favour sustainability but at the same time, to avoid paternalism, allow for alternative behaviours e.g. pension plans could be based on ethical investments but people could still chose to opt out of such schemes.

The relationship between flourishing and sustainable development depends largely on what our basic psychological needs really are. If we are driven by a need for social status, then social comparisons are necessary in order to establish where we lie in the hierarchy. However, there may still be ways in which we can harness this tendency for sustainable ends e.g. by encouraging social norms for recycling and public transport.

Shifting people's attention to improving social relatedness may also be helpful here. This may have the added advantage of focusing attention on the common good rather than individual benefits. It may also serve to highlight how collective action can bring benefits that individuals may not perceive as being meaningful if they think only about the consequences of their own actions.

The subjective well-being (SWB) account offers a promising way of conceptualising well-being in public policy generally and sustainable development in particular. As things

stand, the SWB methodology is limited because of problems of measuring the well-being of people who do not yet exist. However, it is possible to find out the extent to which individuals are willing to trade off current well-being for the future well-being of other people. Gathering such data should be an important part of the future research agenda.

An increased focus on SWB should help facilitate 'joined up' government through the shared objective of enhancing well-being through sustainable development. Any new projects designed to promote sustainable development and other objectives should have clear well-being targets with appropriate incentives designed to meet those targets.

In addition to 'leading by incentives', there is also the possibility of 'leading by example' and the various stages of this research have identified the importance that political will and strong leadership can play in driving a particular agenda forward (e.g. the Congestion Charge in London).

There is the need for more evidence on the relationship between SWB and sustainable development. By considering the full set of consequences for all those affected by a policy decision, we are more likely to produce policy outcomes that improve SWB and that facilitate sustainable development at the same time.

1. BACKGROUND

The UK Government's sustainable development strategy, 'Securing the Future', commits the Government to a clearer focus on well-being. The strategy identified the need to ensure that well-being issues are tackled consistently, in the right way, and that the Government is genuinely making a difference to people's lives. Against this background, the project specification asked for a think-piece that would explore the relationship between well-being and sustainable development.

In order to address this issue, there are three stages of research as part of the project: a review of the literature on the relationships between well-being and sustainable development (set out in Section 2); a questionnaire to elicit a range of perspectives on these relationships (in Section 3); and a workshop to bring together a range of experts to focus on key questions about well-being in a sustainable development context (in Section 4). In Section 5, we discuss some of the general issues that emerge from the various strands of this project and, in particular, the increased use of measures of subjective well-being in policy.

2. LITERATURE REVIEW

The review is not intended to be a comprehensive review of the literature but rather to enable us to provide some clarity about the relationship between different concepts of well-being and sustainable development and to generate some specific examples of the relationships that could then be developed further in the workshop. In what follows, Section 2.1 sets out the search strategy and those papers considered in the review. Section 2.2 describes the various definitions of well-being and sustainable development. Section 2.3 highlights those definitions of well-being that are consistent with particular types of sustainable development and Section 2.4 shows which definitions of well-being potentially conflict with which definitions of sustainable development.

2.1 Search strategy and papers

The concepts of well-being and sustainable development are rooted in several different academic disciplines (e.g. planning, economics, development studies etc.), as well as being widely recognised in various policy agendas. Therefore, it was necessary to investigate many sources of information including academic papers, Non-Governmental Organisation (NGO) publications and government and public interest documents. This enables the identification of practical examples of where well-being and sustainable development have supported or conflicted with each other.

To provide a clearer understanding of the main concepts, key authors were identified from a recent paper by one of our research team (Phillips, 2006) and the Sustainable Development Research Network (SDRN) website. We also undertook a number of key word searches, across a range of disciplines (e.g. economics and psychology) using 'sustainability', 'liveability', 'well-being,' 'ill-being' and 'quality of life' as tools to understand the breadth of literature available on the subject. Literature concerning the

relationship between well-being and sustainable development was obtained by searching the grey literature e.g. unpublished papers by authors identified in the review.

Many prominent sustainable development and environment organisations such as Forum for the Future, Sustainable Development Research Network, New Economics Foundation, Sustainable Development Commission, Wellbeing in Developing Countries, Green Alliance and Futerra were investigated to see whether they had produced any reports or papers. The British Library for Development Studies and the Institute of Development Studies (IDS) website were used to gain additional references with an international context. Both sources contained many references to international well-being. However, most went into great detail about aspects of poverty, gender and national identity, and so were not considered central to this project.

Much of the relevant literature is very recent and so the research council websites and funding institutions were also examined. Both the Economic and Social Research Council (ESRC) and Rowntree Foundation are funding work into sustainable projects and their associated impacts on human well-being. The international workshop on sustainable consumption (held in Leeds) provided results from other recent projects.

Finally, a sector search was taken using sustainability as a key word to find examples of how well-being and sustainable development policy had or had not worked together, and this led to the investigation of the themes of transport, energy and waste because of the wealth of relevant information. Therefore, many of the examples given of the relationship between well-being and sustainable development relate to these themes, some of which were developed further in the workshop.

The Sustainable Development Commission (SDC, 2004) indicates how sustainable communities would benefit from transport policies to relieve congestion problems that hamper economic regeneration. It is also assumed that global warming, the fossil fuel crisis, national dependency on oil from other countries and distributional inequality issues have all prompted governments to explore renewable energy sources (Raskin and Margolis, 1998). Since many of the studies we identified discuss ideas about reducing car dependency and fossil fuel use as a way forwards for sustainable development, it makes sense to pay particular attention to these issues in our review.

2.2 Defining the concepts

Before discussing the synergies and tensions between well-being and sustainable development, it is important to be clear about exactly what these concepts mean, since different definitions may result in different conclusions about the relationship between well-being and sustainable development.

2.2.1 Concepts of well-being

As discussed in our Defra report entitled “Review of research on the influences on personal well-being and application to policy making” (Dolan et al, 2006), there are

essentially five ways of defining well-being: objective lists, preference satisfaction, flourishing, hedonic and evaluative. For the purposes of this report, we have combined the hedonic and evaluative accounts into an account of subjective well-being (SWB).

Objective list accounts argue that well-being is highest when a person is able to meet their material, social and psychological needs. Proposed needs include economic resources, health and political freedom. Objective measures of the satisfaction of these needs are then developed into lists and people's well-being is measured according to the degree to which the items on these lists can be ticked off. In a similar vein, Rawls (1971) developed an index of primary goods, which included rights, liberties and opportunities, income and wealth and the bases of self-respect. The judgement about what things are needed for well-being (education, health etc.) does not come from the individual but draws on theoretical and intuitive accounts of what is of value.

According to the preference satisfaction account, an individual's life goes better for her if she gets what she wants. In the simplest versions of this account, there are no constraints on what an individual can want and all that matters for her well-being is whether a desire is met. More recent formulations of preference satisfaction require that preferences are informed in the sense that they are based on the considered use of all relevant information and some accounts exclude certain 'anti-social' preferences, such as those related to malice or envy, even when they are informed (Harsanyi, 1996). All else equal, if an individual's income increases, she is able to satisfy more of her preferences. It is not the income per se that makes her better off but, rather, the increase in choice that means she can satisfy more of her desires. It is not surprising, then, that most economics textbooks introduce a utility function in which utility is increasing in income (and often increasing in income alone).

Aristotle proposed a perfectionist, or flourishing, account of well-being in which the well-being of an individual is judged by considering how close they are to reaching the potential of humankind. Aristole's term for this was eudaimonia. For Aristole, flourishing focused on acts of virtue and contemplation. However, there are other, more measurable accounts of flourishing. For example, Ryff and colleagues have developed a psychological well-being (PWB) model which is represented by six aspects of human potential: autonomy, personal growth, self-acceptance, life purpose, mastery and positive relatedness. These can all be seen as essential components of what it is to be a flourishing human being (Ryff and Keys, 1995).

SWB accounts focus on what people think and feel about their own lives (Diener et al, 1999). These perspectives build on hedonic philosophies which argue that pleasure is the only thing that is good for us, and pain is the only thing that is bad (Bentham, 1789). Sumner (1995) argues that preferences and feelings each focus on one aspect of how an individual's life can be thought of as going well. An informed individual's assessment of his life overall can incorporate each of these aspects.

2.2.2 Sustainable development

Sustainable development also has its own nuances of meaning with emphasis given to different aspects, such as the environment or social justice, depending on the context in which it is being used. This heavily debated concept has increasingly become the core element of environmental discourse, leading to very diverse interpretations (Mebratu, 1998). Mebratu (1998) considers the three ways of perceiving sustainability (a term that is used interchangeably with sustainable development, as we do here). The first is termed 'the ideological version' which considers the eco-theology approach that encompasses liberation theology, radical feminism and eco-Marxism. It deals more with the way in which people view the world and their place within it. The second is termed 'the academic version' which turns the environment into a commodity. The crux of this perception is that, if the environment were given an appropriate value in economic decision making, it would be protected to a much higher degree.

The third type is termed 'the institutional version' and is the category most suited to this report. The goal is for clean, equitable economic growth. However, even within this institutional version there are concerns about what might be referred to as environmental sustainability, related to the use of the world's natural resources, as compared to justice-focused sustainable development, which emphasises the costs and benefits both within and across different generations (Pearce, 1993).

Within the concern for the environment, steady-state sustainability encompasses the most well used definition of the concept. This comes from the Brundtland report (1987) where sustainable development requires that we leave enough resources for future generations to satisfy their needs: *"Sustainable development is development that meets the needs of the present without compromising the needs of future generations to meet their own needs."* It has its roots in the Malthusian theory of 'environmental limits' (Mebratu, 1998). A similar sentiment is expressed in the report Caring for the Earth where human development occurs but within the limits of what the earth can supply at that time (IUCN *et al*, 1991). Risemberg's (2002) definition encourages a world where we live in self contained systems that do not rely on input from outside the specified system and which are self-sufficient. This form of development assumes that, when considering natural resources, there is no net change.

Utopian sustainable development is a step further as it assumes that sustainable development will improve upon the present and not just maintain a set standard. For example, the International Institute for Sustainable Development (IISD, 2006) suggests *"To be sustainable, development must improve economic efficiency, protect and restore ecological systems, and enhance the well-being of all peoples.*" Hawken (1994) also advocates that "*we need to leave the World in a better state than when we found it*", expressing how sustainable development is a mechanism to achieve this. This approach is termed win-win-win by Scottish Executive (2006) because it is advantageous to the economy, the environment and society. However, on numerous occasions it has been rejected as being unobtainable in practice.

The UK Government's sustainable development strategy, 'Securing the Future' (HM Government, 2005), states that "the goal of sustainable development is to enable all people throughout the world to satisfy their basic needs and to enjoy a better quality of life, without compromising the quality of life of future generations". The latter part of this definition is consistent with Brundtland's steady-state definition whilst the use of the word "better" in the first part is more suggestive of a utopian account, at least in relation to the well-being of the current generation.

Steady state and utopian sustainability are related to the weak and strong forms of sustainability, respectively, and how they are to be achieved (Phillips, 2006). In the recent Scottish Executive (2006) report on sustainable development, weak sustainability assumes that human made capital such as technology will substitute natural capital when it is run down, providing a specified level is never breached. Strong sustainability, however, demands that natural capital is protected absolutely and that no substitute can be made if resources are depleted. Strong and weak sustainability are prominent in ecological economics (Victor, 2005), and focus on the substitutability between the economy and the environment (Ayres *et al*, 2001). There is much debate about the limitations of the weak form (Figge, 2005; Gutes, 1996; Gowdy and Ohara, 1997) and the operationalisation of the strong form (Ozkaynak *et al*, 2004; Franceschi and Kahn, 2003; Kaivo-oja, 2002). However, they are both important here because the ways of achieving sustainability may be at odds with well-being, rather than the definition of sustainability itself being at odds with well-being.

A justice-focused approach to sustainability emphasises a broad range of costs and benefits to current and future generations from the adoption of sustainable practices. An example is from Pearce (1993): "*Sustainable development is concerned with the development of a society where the costs of development are not transferred to future generations, or at least an attempt is made to compensate for such costs*." Haughton (1999) emphasises important equity considerations for the sustainable planning of a city: inter-generational equity, intra-generational equity, geographical equity, procedural equity and interspecies equity. In this view, sustainability is about maintaining equity for communities and societies rather than just the preservation of natural resources.

At the heart of 'Securing the Future' (HM Government, 2005), lies "living within environmental limits" and "ensuring a just, healthy society". These guiding principles focus on inter generational, intra-generational, and geographical equity. 'Securing the Future' is explicit, then, in its focus on environmental and justice-focused sustainability. In addition, there is the aim of "promoting good governance", which emphasises procedural equity. Similarly, The Scottish Executive report (2006), Blair and Evans (2004) and IRH (2005) emphasise participative aspects of delivery and the democratic and political processes for achieving sustainability goals.

Despite the differences illustrated above, all the sustainability concepts have equity issues as an integral element (Campbell, 1996). Nevertheless, the equity principles within the sustainable development literature are interpreted differently and several arguments stand out, such as environmental equity, intergenerational equity and geographical equity. The

literature on environmental equity ranges from considering eco-business practices (Gelter, 2004) to biodiversity preservation (Millennium Ecosystem Assessment, 2005) and human well-being. The latter considers how preserving and using nature can aid people's physical and mental health, which is described, in the RSPB publication 'well-being through wildlife.'

Anand and Sen (2000) discuss distributional equity between generations and argue for the need to integrate present development with that which may occur in the future. This is described as inter-temporal ethics by Ng (2004) who believes that we should treat the welfare of future generations on a par with that of our own. This can be connected to Chamber's (1997) idea of 'responsible well-being', in that we have obligations to future generations and that we should have a better understanding of the future consequences of our current actions.

Other literature emphasises geographical equity, where a beneficial intention for the global good can potentially have detrimental implications for a specific locality, and vice versa. For example, Hanegraaf et al (1998) discuss bio-energy crops as a method for reducing harmful carbon emissions created from burning fossil fuels but also explore the local socio-economic and environmental effects of growing such crops. Raskin and Margolis (1998) also consider the social implications of relying on nuclear energy as they investigate who suffers from the clean up and storage of nuclear waste, which is often far from where the nuclear power station is located.

Ayres *et al* (2001) warn that perspectives on sustainability are sometimes inconsistent across disciplines. Franceschi and Kahn (2003) argue that many statements about sustainable development rarely translate into tangible policies. There are even those who suggest that sustainability cannot be achieved at all, as one form of capital must suffer for the benefit of another and that we should perhaps target policy towards specific aims like saving biodiversity (Newton and Feyfogle, 2005). Having said this, sustainability has been fundamental to the production of major international documents from Agenda 21 to numerous conventions on desertification, biodiversity and climate change (Mebratu, 1998). Although an argument about the feasibility of sustainable development is not an aim in this report, different forms of sustainability may be compatible or in tension with difference concepts of well-being, an issue to which we now turn.

2.3 Synergies between well-being and sustainable development

From a UK perspective, a mutually beneficial relationship between well-being and sustainable development has been postulated (HM Government, 2005 and DTI, 2003). For example, there is the idea that shaping neighbourhoods for health, sustainability and vitality will inevitably lead to better residents' well-being (Barton et al, 2003; Colfer at al, 1998; DTI 2003; O'Brien and Claridge, 2001). "*A good quality local environment has clean air and water and is free from the threat of pollution and flooding. In it people have access to good quality green spaces, waterways and nature. It also provides opportunities for leisure and social activity, creates jobs and is good for the local economy*" (Environment Agency 2004).

In addition, the two concerns are positioned together in the following quote from the UK governments' latest strategy for sustainable development (HM Government, 2005), which describes: *"A just society that promotes social inclusion, sustainable communities and personal well-being."* The type(s) of well-being and sustainability concept(s) are not described in detail, and sometimes it is implicit that well-being will be an obvious result of determinants such as a cleaner environment and increased recreation facilities. In the following sub-sections we distinguish the effects of sustainability for the different accounts.

2.3.1 Objective well-being

The Future of Transport White paper (2004) states that local travel will be enhanced by improving the quality of the local environment so that cycling and walking are seen as an attractive alternative to car travel for short journeys. This will promote physical health benefits for all those exercising by walking and cycling between destinations. Pretty *et al* (2003) describe how physical activity outside can reduce the risk of serious illness such as heart disease, in addition to enhancing mental health and self-esteem. In addition, those people not travelling will benefit from the reduction in smog and air pollution caused by standing and slow moving traffic (Newman, 1999).

This view of how objective well-being fits with an environmental view of sustainable development is highlighted in developing countries. Bradley and Childs' (2006) place development at the heart of a discussion about sustainable energy plans. They provide several examples of how well-being does not have to be sacrificed for sustainability. One such example is ethanol production in Brazil. During the 1970s, there was an oil crisis and a slump in sugar prices on the world market. In 1975, the government encouraged the production of alcohol to replace gasoline in vehicles, keeping gasoline prices higher than the renewable fuel in order to encourage people to use it. After several slumps and rises in oil price, additional benefits were reaped from ethanol production as sugar cane residues were used to create electricity and heat. Recently, there has been a strong rationale to keep using biofuels because of future oil depletion. Ethanol production creates 15 times as many jobs as the oil industry and sugar cane workers are relatively well paid. Moreover, around 30% of sugar cane production is in the hands of 60,000 independent producers, representing a major activity for small farmers.

In a European context, environmental views of sustainability also incorporate objective well-being e.g. the green net project of the Danube. The aim of the project is to seek national park status that will encourage visitors to bring in income whilst re-establishing a clean and healthy aquatic ecosystem. Wetland tourism is a particular kind of "nature near" tourism that could potentially provide economic incentives in several areas along the Danube and will be encouraged by the development of a bicycle path network within buffer vegetation strips. These measures should increase bank stability and decrease the amount of sediments leaching into the water whilst encouraging visitors to be healthy by burning their own energy for getting around rather than an external fuel source (Breiling, 2002).

The theme of energy efficiency follows the principle that we do not use more than the Earth can replenish at the time. The Energy White Paper (2003) is an outline of some of the government's principle energy goals. One key aim is to reduce carbon dioxide emissions by 60% by 2050. Renewable energy sources are going to be encouraged but energy efficiency is seen as a crucial way of reaching targets. In 2003, the government expected to achieve half of the extra carbon savings we need by 2020 via this route.

Upgrading housing for this purpose can promote wider sustainable development aims and objectives because it produces environmental, social and wider socio-economic benefits alongside reduced fuel bills for the consumer (Goodacre *et al*, 2002). Additional benefits range from the creation of more than 33,000 jobs, improving the health of residents who would otherwise suffer from damp related illnesses, the reduction of 138,680 kt of carbon dioxide emissions and an estimated £9852 million being spent on heating and hot water (Goodacre *et al*, 2002). *One Planet Living* also focuses on how we can all live within our environmental means – and yet increase our objective well-being. An example is the housing project in the Thames Gateway (James and Desai, 2003). An experiment was carried out to see how much water, energy and waste production could be reduced with different standards of eco-friendly housing. The result highlighted how it was both possible to lower household expenditure in addition to enhancing environmental benefits.

Justice-oriented sustainable development plans can also provide synergies with objective well-being. Cities that have become car-focused have witnessed a move of those who cannot drive or who cannot afford motor vehicles to become increasingly disadvantaged. Often those affected are the poor, the elderly and the young (Newman, 1999 and Worpole, 2000). Without a means of transportation, these groups of people become marginalized and their well-being suffers. However, if local bus services are improved within the city centre and the immediate residential areas people have less time to wait and their mobility increases allowing them the freedom to shop or use the city facilities when they want to (Campbell, 1996). Therefore, a public transport system can reduce the use of cars, help save environmental resources and sustain community life.

In addition to these health and social benefits, using sustainable transport may increase an individuals' prosperity as low-income households can spend over 20% of their income on running a car (Newman, 1999). For example, a Swiss car club called Mobility estimates that anyone driving less than 15,000 km/yr can save up to £110 per month by being part of the club that hires out vehicles when needed to each of its members (James and Hopkinson, 2002). This allows the member to pay a membership fee and fuel costs only, whilst hiring the kind of car or vehicle suitable for a particular journey.

2.3.2 Preference satisfaction

Both environmental and justice-oriented outcomes could also come about by tapping more effectively into the public's current preferences for sustainability or by encouraging shifts in preferences. Many people state that they want greater environmental protection, for instance to maintain an environment fit for their children and grandchildren.

Behaviours such as recycling, car sharing and investment in alternative energy sources (e.g. solar panels) are all evidence of the potential for preference satisfaction alongside sustainable development.

However, Jackson (2005) claims that people are often "locked-in" to unsustainable behaviours. Where public transport is scarce and roads are dangerous, a car may be the individual's only practical and safe transport option. Where recycling opportunities are limited or where people cannot afford capital investment in alternative energy sources, their preferences may not be able to be realised. Thus, there may be many instances where members of the public would prefer greater sustainability but require policy-makers to make the necessary capital investments.

Alternatively, where people's current preferences are not related to sustainable options, policy-makers may want to attempt to influence them or, more precisely, to influence behaviour. Jackson (2005) proposes a number of methods for doing so. For instance, policy makers can alter incentive structures, e.g. impose taxes on unsustainable preferences. This changes the relative prices that consumers face and therefore changes the composition of the bundles of goods and services that maximises their well-being, but it does not change the underlying preferences as such. Policy-makers may also want to change people's preferences by challenging the accepted beliefs upon which they are based. For example, Lewin (1951) has argued that there needs to be open discourse about the problems associated with ‘negative’ habits and a discussion about the feasibility of alternative choices. In other words, it is up to policy-makers to engage the public in debate about whether preferences can and should be changed.

Finally, policy-makers themselves can set an example and engage in more practices in line with both environmental and justice-oriented sustainability e.g. by contracting work to firms who adopt a more pro-environmental stance, using public transport themselves and so on. A number of authors claim these signals are important because they model what behaviour is seen as acceptable. The media and public are quick to point out perceived hypocrisy in this area, e.g. John Prescott's use of two different official cars for short journeys, and David Cameron’s chauffeur-driven car for his shoes and briefcase while he cycles to work.

2.3.3 Flourishing Accounts

According to some, flourishing accounts of well-being are inherently associated with a more sustainable lifestyle, at least in developed countries (e.g. Brown & Kasser; 2005; Kasser, 2002; Kasser & Ryan, 1996). Once basic material needs such as food and shelter are met, supporters of this approach argue that people strive to satisfy their social and psychological needs of belongingness and feelings of purpose. However, these could potentially conflict with the attainment of further material possession, if, for example, further consumption requires less enjoyable but better paid jobs or requires longer working hours that reduces the amount of time can be spent with friends and family.

It is possible, therefore, that individuals do not ‘grow out’ of materialism even once their basic material needs have been satisfied. It has been argued that a materialistic view, often measured by the importance the individual places on financial success, is negatively related to happiness as well as to flourishing. It has been suggested that this is due to the extrinsic (or ‘outward focused’) nature of materialist desires which are thought to lack the potential to meet underlying psychological needs (Kasser & Ryan 1996), even if those materialist desires are subsequently met. Moreover, there is evidence that we generally have favourable attitudes towards life experiences over material things although our revealed preferences often suggest otherwise (e.g. van Boven and Gilovich, 2002).

Where materialism is oriented around a relative income or consumption position, from a society wide perspective, such attitudes and motivations cannot lead to an increase in total well-being. If consumption is designed purely to establish a social rank it can only work to alter individual’s position within that rank order, but cannot increase the aggregate level of social well-being. It has been argued, for instance, that the acquisition of material possessions and in particular 'conspicuous consumption' leads to a spiral of unnecessary social competition for scarce resources (Frank, 1999).

While materialism may create social competition and divisive social relationships, it has been argued that more attention to human flourishing, with its focus on building interpersonal bonds, may encourage greater cooperation and a more sustainable use of scare resources. The "tragedy of the commons", for instance, is a well-known example of what happens when trust and co-operation break down in such instances (Hardin, 1968). As long as each user of a common resource acts for the common good, it can be maintained. When everyone acts out of short term self-interest, everyone will suffer as the resource becomes depleted too quickly to recover. Falling fish stocks are a well-known example of this phenomenon.

Shifting people's attention to improving social relatedness may thus not only serve to help meet an underlying psychological need, but it will have the added advantage of focusing attention on the common good rather than individual benefits. If people begin to see that competitive consumption leads to short term individual benefit, which is both easily undermined in the long run (as others also engage in competitive consumption) and which undermines sustainable development, this may create incentives to change pattern of competitive consumption. However, as the example of the tragedy of the commons shows, collective action in the form of enforceable restrictions may be necessary in order to address these types of externalities.

2.3.4 Subjective well-being

Day (1998) found that the successful development of rural areas often emphasises the role of social networks and ‘institutional thickness’ (the effectiveness of the community, local government and support networks to work together rather than against one another) in building confidence and trust, which are known to be important determinants of SWB (Dolan et al, 2006). By promoting a bottom up approach to enhance trust between different levels of the community, sustainable development would therefore embed

change within the prevailing social and cultural resources of the rural population. People should feel involved/integrated and participate in the decision making process.

The author provides an example of Tir Cymen in Wales, where farmers were struggling to cope with policy change that did not seem to fit their needs. Tir Cymen constructed an agri-environmental framework that incorporated the social and economic circuits of farmers that built on what farmers already practiced. In addition to fulfilling the criteria for steady-state and justice-orientated sustainable development, the SWB of farmers appears to have improved from the scheme in that they reported feeling happier and more successful (and which, from economic indicators, many of them were).

As a further example of where sustainability and SWB are consistent, Gatersleben (2001) conducted a study of 393 Dutch households to examine how people judged their quality of life when they adhered to a less energy consumptive lifestyle. In general, people did not feel a burden when reducing their energy use unless they were asked to reduce their consumption by over 25% from their current level. The least sustainable consumption patterns were found among high-income groups and young couples but well-being was relative to the percentage of energy use that was reduced rather than absolute amount used (i.e. a 25% reduction has the same impact irrespective of whether initial consumption was high or low). This study suggests that how people feel about their lives is quite flexible in the face of policies aimed at steady-state sustainability practices.

James and Desai (2003) highlight that global threats, such as climate change, often appear to the public as intangible concepts, which individuals can do little about. Projects like sustainable housing schemes, on the other hand, provide an educational resource to residents by providing practical solutions for dealing with some global scale problems. Residents are also likely to take up other steady-state sustainable practices in a bid to improve their own SWB. Jackson (2004) reinforces the idea that SWB is malleable and, once people understand the consequences of their actions, a stronger pathway to sustainable development may be possible. Indeed, the current generation's SWB may only temporarily diminish in response to sustainable policy and actions (Ruta *et al,* 2006).

2.4 Tensions between well-being and sustainable development

The most common way in which well-being and sustainability are seen to conflict with one another is in relation to the time frame over which they operate. Neumayer (2004), for example, argues that well-being is orientated to the present whilst environmental and inter-generational sustainability looks towards the future. This produces a temporal discord as those who are alive have to endure difficulties for the benefit of future generations (Anand and Sen, 2000). Again, there may be different tensions depending on how the concepts are defined and put into practice.

2.4.1 Objective well-being

Much debate surrounds the potential conflict between sustainability and economic development (e.g. Bradley and Childs, 2006; Diener and Seligman, 2004; Gasper, 2004;

Jackson, 2004; Travers and Richardson, 1997; Jackson, 2002; Anand and Sen, 2000; Jackson and Marks, 1999; Raskin and Margolis, 1998). It is possible that any form of sustainable development will lead to a slowdown in economic growth, which could result in a decrease in tax revenue and government spending, and a rise in unemployment, which is consistently a pressing concern for government.

The negative effect of this on justice-focused sustainability is as much a concern to advocates of sustainable development as the negative impacts on the environment of current levels of growth (SDC, 2003). Moreover, at an international level economic growth is positively related to education levels, life expectancy, access to material resources such as clean water, nutritional requirements and adequate housing and negatively related to morbidity, infant and maternal mortality.

In some cases, small groups of people may lose out as others benefit from more sustainable practice. For example, the introduction of the Water Framework Directive (WFD) could bring major changes to irrigated farming in the European Union and, in order to save water, people may experience a decrease in their livelihoods. A water pricing policy under the WFD will result in a significant decrease in farmers' incomes because of the payment of water tariffs to the state and the withdrawal of crops with higher water demands (corn, sugar beet and alfalfa) that usually generate greater profits. This decrease in the profitability of irrigated agriculture could lead to the economic 'unsustainability' of farms, which in turn might bring about the withdrawal of a large proportion of farmers from agriculture. On the other hand, there will be water savings and a decrease in nitrogen fertiliser consumption (Gomez-Limon and Riesgo, 2004: 36).

This highlights the fact that sustainable development may be conducive to some elements of objective well-being but not to others. Consequently, assessing whether overall well-being will increase will often require weighting different attributes within the objective list e.g. fitness versus freedom versus income, and weighting well-being between different people. The relevant weights attached to these attributes or individuals, or trade-offs between them are rarely discussed.

2.4.2 Preference satisfaction

According to Reeves (2003), we do not want to give up our freedoms to make choices about our own well-being, and sustainability generally may restrict the choices we face. Preference satisfaction may not then be particularly compatible with any form of sustainable development. An example is the Johansson *et al* (2006) study on commuters between Stockholm and Uppsala in Sweden that highlighted the importance of flexibility and comfort when people chose their preferred mode of transport to get to and from work. Characteristics such as comfort and control are areas where the car dominates other forms of transport and commuters felt these benefits would diminish if forced to use public transport facilities. Even car sharing schemes take away some of the flexibility and convenience associated with car use (although there may be benefits associated with greater social interaction, which contributes towards objective and/or flourishing types of well-being).

The Future of Transport White Paper (2004) explores the option of car-pooling and high occupancy vehicle lanes but people need to actively search out their passengers, which requires effort to sign up to clubs such as freewheelers, which covers the Sheffield district, and find people who have like minded travelling patterns. This raises issues of safety for vulnerable drivers and passengers. For example, liftshare publishes a selection of safety tips on sharing personal information and car sharing protocol.

As a further example, people have traditionally wanted to live in the suburbs or the countryside where there is perceived to be tranquillity, safety and more open space. The strong sustainable development of compact cities may have beneficial impacts on the countryside and greenbelt planning but compact cities may also decrease individual choice as people are forced to live in conditions that are not their preferred option (Nicholson-Lord, 2003). Despite evidence that commuting may result in losses in SWB (Stutzer and Frey, 2005), citizens may still resent any policies that restrict their ability to satisfy their preferences, as perceived by themselves.

Another example of where preference satisfaction is at odds with (steady-state) sustainability concerns temperatures in buildings. Chappells and Shove (2004) warn that maintaining our indoor comfort standards will commit society to dangerously unsuitable patterns of energy use. Recent surveys of UK homes estimate a steady increase in average temperatures, with living rooms now routinely heated above 21-22°C (Walters *et al*, 2000). Global warming could exacerbate the issue as warming temperatures initiate the use of expensive air conditioning, which will increase energy demand and greenhouse gas emissions even further (Chappells and Shove, 2005). Until building design changes to cope with the predicted changes in temperature, people may have to suffer uncomfortable conditions in their workplace and homes.

2.4.3 Flourishing Accounts

One of the problems for flourishing accounts is evidence that materialistic people generally earn more than non-materialists and this higher income largely offsets any losses in well-being associated with being materialistic per se (Nickerson, Schwarz & Diener, & Kahneman, 2003; Nickerson, Schwarz & Diener, 2006). For those who achieve their material goals, the achievement of these goals brings happiness, much as the attainment of any other goal does. To the extent that material goals are related to status and status is a zero-sum game, it may instead be a desire for status and social recognition that is the problem for justice-focused sustainability (Kasser, 2002). Therefore, if a flourishing account includes status, social respect, pride, self-esteem, and such things are achievable through meeting a social norm for high levels of consumption, or through attaining more consumption than other people, then conflict between consumption and flourishing may not arise at the individual level.

Similarly, there is a concern for the flourishing account proposed by Maslow (1954) who argues that respect from others is an important higher level need. It is, however, in keeping with evolutionary theories arguing that status and hierarchies are part of the

biological make-up of highly social species and that it is impossible for all individuals in a society to be top of the pile. Socially "unacceptable" behaviours such as graffiti, vandalism and binge drinking may all be examples of people trying to 'big themselves up' in domains where they feel they can achieve respect from their peers. Thus, inherent needs can manifest themselves in a number of ways, some of which may be at odds with sustainability.

A related problem of flourishing accounts is a lack of clear rules for evaluating the trade-offs between inherent needs. For instance, supporters of flourishing accounts may argue that vandalism or driving a big car are not satisfactory behaviours for true flourishing, even if they do lead to greater social respect from one's limited peer group, because they go against underlying needs for social cohesion more generally. However, it is unclear what weights should be given to the various needs such as social respect and relatedness in order to achieve flourishing. As noted above, leaving the individual to define the weights may result in non-sustainable practices, whilst encouraging policy makers to set the weights encourages paternalism.

Furthermore, advocates of a flourishing account highlight the potential for Voluntary Simplicity (VS), which essentially means reducing income and the consumption of certain goods to enhance well-being through leading a simpler, more sustainable life (Brown & Kasser, 2005). However, those who do not opt for such a simple life (VS is surely not to everyone’s tastes), will presumably still be expected to subsidise, through the higher tax revenues from their higher incomes, the education, health care etc. of those who do opt for VS. It is not clear the degree to which this would considered inequitable by those contributing more than their fair share towards the provision of public services, and it is not clear whether their losses in well-being will be offset by the gains in the well-being from VS.

Of course, a more equitable system might result from the majority adopting a VS lifestyle but the levels of redistribution through the tax system may then fall below the levels to provide adequate education, health care etc. to the poorest members of society. Evidence of well-being in countries where the majority of people are living in "Involuntary Simplicity" suggests significantly lower SWB than countries that are much richer and have better social infrastructure (e.g. Diener & Biswas-Diener, 2002). Therefore, VS may well benefit the few who adopt it in developed countries but if too many people follow this lifestyle, economic development and the social infrastructure associated with such development may be compromised.

Finally, supporters of a flourishing account often use measures of SWB as their ultimate dependent variable, arguing that pro-environmental behaviours make people happier through their satisfaction of intrinsic (underlying) needs versus extrinsic needs i.e. those that do form an inherent part of psychological well-being (e.g. Brown & Kasser, 2005; Kasser & Ryan, 1996). It might therefore be more straightforward to simply monitor SWB since ultimately the satisfaction of intrinsic needs will show up in SWB. This avoids the problem of having to distinguish between intrinsic and extrinsic needs, which is particularly difficult when making interpersonal comparisons (what is intrinsic for one

person might be extrinsic for another). It also avoids having to equate particular goals (helping the community, for example) with a specific type of motivation (intrinsic, for example), because people can do various activities, including making money, for all sorts of reasons.

2.4.4 Subjective well-being

How you feel about life is central to the public transport debate. Cars can be status symbols and can represent identity and types of lifestyle. Other people may be more willing to use public transport but are dissatisfied with the facilities available for use. For example, there are some comments available on discussion boards about Sheffield's Supertram and these include complaints about the service being expensive, having poor communication about where the routes go, lack of information about ticket pricing, and inappropriate park and ride infrastructure. A route that would take 30 minutes by car can take over an hour when using the Supertram. This will increase commuter time and reduce SWB and the time for recreational activities that improve SWB (Cushman *et al.* 2005; Pretty *et al*, 2003; Michalos, 2000).

SWB has also been connected to the aesthetics of a person's surrounding environment. Although many people support renewable energy development (Lindley, 1994), there is a trend of opposing plans that involve wind turbines or tidal barrages. Devine-Wright (2005) describes this as NIMBYism (the Not-In-My-Back-Yard attitude) as public acceptability often poses a barrier towards renewable energy. A common example is the erection of wind turbines to create wind farms. Often local residents feel there is an unacceptable level of visual intrusion, fearing noise pollution, a reduction in income from reduced tourism and falling house prices. The proportional decrease in carbon dioxide emissions for each person who lives near a wind farm may be a small and intangible compensation for the residents (Benson, 2004).

Given this, it is not surprising that the planned Whinash wind farm at Kendal has recently been rejected after a public inquiry. The local public were concerned that the 27, 115m high turbines would have such an impact on the landscape and recreational pursuits that the benefits of reduced emissions would not compensate for the loss of the precious Lake District scenery. A representative of Greenpeace suggested that climate change will harm beautiful areas in the Lake District anyway and that sacrifices should be made to halt the adverse effects of climate change on landscapes. Benson (2004) believes that residents are actually against the profit making organisations that want to site turbines rather than against renewable energy itself.

A further example of NIMBYism is the proposed Severn Estuary barrage, which reputedly has the energy capacity to produce as much as two nuclear power stations. There has been fierce local opposition because of the effects it would have in changing the local coastal area and residents' feelings of place. The famous bore would be eliminated, which is locally enjoyed by canoeists and surfers alike. It appears that the scheme would benefit the whole area whilst there would be problems faced by the local community, and so, as with many other issues, geographical equity is a central issue.

A further example related to geographical equity, but which cuts across all definitions of well-being, is provided by the opposition to the incinerator in Sheffield. On one hand, it gets rid of household waste that the city produces whilst converting it into heat and power for some of the city's buildings. On the other hand, the incinerator produces emissions, which local residents fear may damage their health. Friends of the Earth (2004) found that incinerators are an unwelcome addition to any area as they produce damaging emissions and bring in extra traffic. Often incinerators are located in the most deprived areas of a city. For instance, in Sheffield the ward where the incinerator is located is the 6th most deprived ward out of 29 in the City (Government's Index of Multiple Deprivation, 2000). Worpole (2000) argues that disadvantaged communities are penalised twice as they receive less economic wealth and they are forced to live in environments, which "exact an additional toll on their well-being".

2.5 Summary of review evidence

This review has focused on clarifying approaches to, and relationships between, well-being and sustainable development. Four broad approaches to well-being have been identified: objective lists; preference satisfaction; flourishing or psychological well-being; and subjective well-being. Goals of sustainable development can be expresses in either a weaker, steady state formulation (as in the Brundtland report) or in a stronger more utopian formulation, making the world a better place. Overall, sustainability can be disaggregated into environmental, economic and social elements and can be conceptualised from an ideological, academic or institutional perspective. Notions of social justice and equity are central to linkages between well-being and sustainability, incorporating both intra-generational and intergenerational perspectives

Foladori (2005) believes that something has to give at some point as not everything is possible at the same time but it is far from clear where the real tensions in policy really lie. Earlier literature emphasised issues of intergenerational equity. The constrained optimisation problem of the science of sustainability would then be to identify social institutions and attitudes that optimise present human well-being within social and biophysical limits, while maintaining the ability of future generations to enjoy no less a level of well-being and satisfying our ethical obligations to the non-human world (Dodds, 1997). More recent literature has focused on distributional equity across the contemporary world and how resources can be shared around in a fairer manner for present and future development.

There is some suggestion from the literature that objective well-being may be compatible with environmental sustainable development, often due to synergies arising in terms of reduced pollution and health benefits. Many policies aimed at promoting sustainability in a very general sense emphasise important benefits for health (e.g. the Future of Transport White paper, 2004) and for income (e.g. ethanol production in Brazil). The distributional consequences for health and income of the emphasis on car transport show a clear synergy between objective well-being and both environmental and justice focused sustainability. Where income and sustainability are seen to come into conflict with one

another is in relation to economic growth. This highlights the tension between environmental sustainability, which may be compromised by economic growth, and justice focused sustainability, which may be enhanced by the increased tax revenues from growth.

The literature suggests that well-being and sustainable development may be less compatible with one another if well-being is defined as the satisfaction of preferences. Having our desires met through high consumption lifestyles is not consistent with sustainable development. An example is that people choose to use their cars even when public transport is available and they may not support plans for developing wind turbines near their homes (although they are not against renewable energy sources being sited elsewhere). On the other hand, people may already have many sustainable preferences which they are unable to satisfy because of limited opportunities or because they may be locked into unsustainable consumption habits. Much will depend on the degree to which underlying – or idealised – preferences are consistent with sustainability in ways that actual – or revealed – preferences are not.

From the literature to date, policies encouraging people to meet their basic psychological needs in order to flourish offer no clear prescription for sustainable development. Shifting the focus away from materialism may help sustainability but it is unclear where or how the underlying need behind materialism, perhaps social status, will manifest itself instead. On a positive note, alternative incentive structures to income could be created to reward people and satisfy any need for social recognition. For example, to some extent the honours system in the UK rewards those in the public sector who are generally paid less than similar individuals in the private sector (Frey, 2005).

There are good examples of both synergies and tensions between SWB and sustainability. For example, people are happy to reduce their energy consumption in their home because it brings environmental benefits and they may become even happier if they can see the benefits gained from a responsible action. Examples from the questionnaire included the reduction of car use, which led to increased walking or cycling and better health. On the other hand, people may feel worse off if they have unsightly wind turbines in their area (although, in fact, it may be simply that they think they will be worse and are mistaken in this view: once wind turbines have been erected people don't think they are too bad and even see them as local landmarks; see Devine-Wright, 2005).

3. QUESTIONNAIRE

The analysis of different concepts of well-being and the different forms of sustainability is useful because it highlights different synergies and tensions between the various concepts. To pursue some of these differences further from a more policy and practical orientation, we developed an online questionnaire which was to be completed by a range of policy makers and practitioners. Since many of the respondents to the questionnaire were also invited to attend the workshop, the questionnaire also served to get workshop participants to start thinking about the general issues that would be discussed in the workshop.

The questionnaire was divided into three parts. The first part asked respondents to define sustainable development and well-being, and the second part looked at the relationship between the concepts. These questions were designed to consider the degree to which the definitions and relationships identified in the literature correspond with those generated by practitioners. The third and final part of the questionnaire asked respondents about their general attitudes towards the role of the government and individual behaviour in promoting sustainable development and well-being. A copy of the questionnaire, which was developed in consultation with academics involved in sustainable development, is provided in Appendix A.

3.1 Sample

The invitation to participate was sent to two JISCmail mailbases – Sustainable Development Research Network (SDRN) and Interdisciplinary Research Network for Environment and Society (IRNES) – and to a list of Local Authorities involved in sustainable development that is published on the DEFRA website. It was also sent to those who had agreed to participate in the workshop as part of this project. In total, 67 completed questionnaires were received.

Responses came from a diverse group of people, including sustainable development coordinators, people promoting sustainable development both within their organisation and to the general public, researchers working on sustainable development projects and those working on strategies where development is important, such as for the Local Agenda. Three respondents stated that sustainable development was not important to their work role but that they had a personal interest in the concept. Well-being was also highlighted as being important within the respondent's organisation. This was mainly in connection with staff welfare, life satisfaction and happiness with their own job but 15 respondents specifically investigated well-being in communities and in the context of regeneration projects. Five respondents stated that well-being was peripheral to their job.

3.2 Results

3.2.1 Definitions of concepts (Q1 and Q2)

The definitions of sustainable development, like those found in the literature, were varied. Many respondents quoted the Brundtland Report but this may be because they had already seen our draft review as background briefing for the workshop. Some general themes can be identified within the other definitions, many of which fit the concepts identified from the literature. The first emphasised the importance of natural resource preservation e.g. *"development without draw-down of natural resources and without environmental degradation"*. Other definitions highlighted that sustainable development is about the consideration of all forms of capital by *"balancing social, economic and environmental issues"* and by providing compensation if something is damaged or depleted.

There was reference to future generations and how the concept takes a long-term view e.g. *"To make our current environment – including the social aspect, not just the 'green' environment – a more acceptable place to live, but also for our future generations to enjoy without having to clean up our mess. It is about long term thinking, not our current short term."* Interestingly, with regard to relationship between sustainability and well-being, there were several examples of where definitions assumed that well-being will be a product of sustainable development e.g. *"a reorientation of development goals away from economic growth and towards well-being"*.

The definitions on well-being could be divided into those focusing on the individual's well-being and those that incorporated a sense of community or societal well-being. Many referred to a person's 'happiness', 'quality of life' and 'life satisfaction' where well-being is being *"healthy in a way that includes physical, mental, spiritual and emotional health."* Some did mention basic needs such as food and shelter but the majority focused on the individual's level of happiness. Others suggested that acting responsibly and participating in community life would ultimately bring about well-being as well-being is a *"balance of social, economic and environmental health in individual and community life that engenders respect from others and the environment"* and occurs when *"everyone is treated equally"*.

3.2.2 Relationship between sustainable development and well-being (Q3-Q5, Q8-Q9)

About 60% of respondents felt that there was some or complete tension in the current regulatory context between increasing well-being (as they defined it) and increasing sustainability. There was also general agreement concerning the levels of conflict occurring between the different definitions of well-being and the concept of sustainable development. Over 80% of respondents felt that there would be often or complete conflict between well-being and sustainable development when well-being was defined as 'she is better off if she gets what she wants', as compared to less than 20% when well-being was defined as 'she is better off if she reports a high degree of life satisfaction and to being happy'. These results are consistent with, though a little more extreme than, the general sentiments expressed in the literature that suggest that a preference satisfaction account of well-being is more likely to conflict with sustainable development than a SWB account.

In relation to the open-ended questions, the most cited example of a tension between well-being and sustainability was transport. Ten respondents mentioned the *"over-reliance on private transport"* because the car is perceived to be more comfortable and convenient – and it saves time e.g. *"depending on route, if some parents travel to work by public transport/bike they would spend up to 1.5 hours a day less with their children. Some people therefore drive to work"*. One respondent described how their organisation attempted to discourage car use by reducing the amount of car parking spaces available but this caused *"problems further down the line as people parked on verges and got frustrated (less well-being)!"* Similarly, BedZED[1] attempted to introduce a sustainable low car policy but *"some people were fine with that and have joined the car club. Others resented it and don't want to pay for a permit but still want a car."*

[1] http://www.bioregional.com/programme_projects/ecohous_prog/bedzed/bedzed_hpg.htm

Other areas of conflict occur in waste management, energy use and recreational activities. Some argue that our waste consumption is unsustainable but people appear to be unwilling to recycle household waste and *"accept new alternate week's collection systems"*. The issue of energy was mentioned several times because we seem to want and need more and more energy to run our present lifestyles. A specific example of conflict at work follows: *"We do not have air conditioning in the building, but the building is currently reaching extremely hot temperatures. Staff are buying desk fans to try to keep cool, but the temperature is still too hot. There is conflict between conserving energy and creating a pleasant environment in which to work"*. These tensions are similar to those we identified from the literature e.g. Chappells and Shove (2005).

It seems that respondents had greater difficulty in identifying examples in their work where well-being and sustainability have complemented on another, and four provided no examples at all. Interestingly though, those examples that were given were similar to those given for the tensions i.e. transport, energy and green space. This is consistent with the idea that every aspect of life could either have conflict or synergy between well-being and sustainable development depending on attitudes and actions taken.

Using alternative modes of transport can be good for an individual's health because physical exercise occurs during walking and cycling whilst less air pollution and associated illness occurs if fewer cars are used: *"At BedZed, people who have joined the car club are very positive about it, they are better off financially and they also generate a community feel because we share our cars."* A win-win situation is also occurring in new energy efficient housing as there is *"a fit between reduced carbon emissions and reduced energy bills for residents."* Green spaces do not just provide a threat to safety but *"good quality, green open spaces have been shown to have positive health benefits on park users, as well as having benefits for biodiversity and wildlife"*.

3.2.3 Attitudes (Q10)

There were a series of statements designed to get at respondents attitudes to government action (a, d, e, f and h) and individual behaviour (b, c, g, i and j). The results are summarised in Figure 1. At a general level, many respondents disagreed with the statement that 'sustainable development is simply about taking account of the well-being of future generations'. The comment that governments are more concerned with well-being than they are concerned with sustainable development was agreed with by about half the respondents but a third of responses were in the neither agree nor disagree category, which may be a result of respondents being unclear what policies are currently in practice. Over half of the respondents agreed that governments need to increase the taxation on consumer durables in order to promote sustainability. There was overwhelming support of the idea that it is possible to promote win-win policies but nearly all respondents felt that government policy is not sufficiently orientated to the well-being of future generations.

Three-quarters of respondents agreed that sustainability is only possible if individuals change their consumption decisions but over four-fifths disagreed that sustainable consumption decisions are incompatible with decisions that maximise individual happiness. This is again indicative of the view that sustainable development is more compatible with SWB than with preference satisfaction. The responses for the statement 'individuals will always choose their own happiness over sustainable patterns of consumption' were a lot more varied and this same pattern occurred for responses to the comment 'sustainability will require some groups to sacrifice some of their current well-being.' The majority disagreed that it will be the poor people who will pay the price in terms of well-being for sustainable development and only 20% agree or strongly agree that it will be this group of society who will suffer the most. Further research and analysis might be able to link this viewpoint to the large number of transportation examples given for previous questions which suggested that the wealthier car owners may have to sacrifice more than public transport users.

3.3 Summary of questionnaire

The questionnaire drew responses from a small but interesting cross section of professionals from academics to practitioners. Despite the definitions covering a wide range of ideas, they did seem to fit into the categories identified in the literature review. There were examples of the 'steady-state' where sustainable development should exist within resource limits and the 'utopian' where people perceive a social and/or well-being benefit from sustainable development. Nevertheless, the diversity of views indicates that policy-makers should not assume that those who are implementing the policies share the same assumptions.

On the whole, respondents were optimistic about how society can achieve sustainable development and improve well-being; many thought that 'win-win' policy options were possible and some agreed with the notion that a shift towards sustainable consumption practises may not necessarily involve much sacrifice in terms of personal well-being. It would be interesting to explore further people's views about the relationship between well-being and particular consumption behaviours.

4. WORKSHOP

In order to explore the relationship between well-being and sustainable development more fully, and in a more structured environment, we held a workshop in Sheffield on 13 and 14 June 2006, which brought together researchers and practitioners from a variety of disciplines and background including health, wellbeing, community action, planning, air quality, landscape, economics, ecology, policy and sustainable consumption. The workshop programme and list of attendees is given in Appendix B.

4.1 The presentations

Since participants in the workshop came from different backgrounds and disciplines, we felt it useful to introduce case study presentations to provide some common language and

context for conceptual and theoretical debate on the relationship between sustainable development and well-being. The selection of the four topics was informed by: the findings of the literature review (e.g. transport); a desire to cut across different accounts of well-being (e.g. focus on preferences and subjective well-being); and critical issues within sustainable development (e.g. transport, waste, energy).

4.1.1 Presentation on household environmental activities

Anna Scott gave a presentation on "Understanding sustainable development in households: a framework of environmental activity in households and its consequences for environmental activity promotion strategies". Anna Scott is a postgraduate researcher currently writing up her PhD thesis within the School of Management at the University of Sheffield, where she is supervised by Caroline Oates and William Young at the University of Leeds. The abstract for her presentation was as follows:

"The general public can contribute to sustainable development by engaging in environmental activity in the home such as recycling, energy saving measures and 'green' purchasing. While there has been much research into the factors that influence the participation of the general public in environmental activity, the field has traditionally reduced the general public to the unit of the individual, thereby ignoring the issue that decisions regarding environmental activities are made within the social context of the household. This paper reports the findings of research that examined how and why households, as opposed to individuals, engage in environmental activity thus contributing to sustainable development. The research used focus groups with twenty-four households to examine how environmental activities in households are managed on a day to day basis and how such activities start and develop over time. Using a grounded theory approach [which is data-led] the qualitative data was used to develop a framework of environmental activity in households which incorporates both day to day processes and processes over time. The framework highlights the importance of incorporating environmental activity into the everyday lives of either all members of the household or just one member of the household in relation to maintaining behaviour on a day to day basis. The framework also highlights that the engagement of households in environmental activity is a gradual and incremental process driven either by a household theme in relation to environmental activity or an individual displaying leadership. The role of communication is specifically discussed focusing on the type of information which households act upon, how such information enters the household, and the ways in which information is communicated within the household. The implications for environmental activity promotion strategies are discussed in the context of recent policy developments which recognise that information alone is insufficient to drive behaviour change."

In the discussion that followed, issues of intent and how individuals and household perceive themselves were raised. Two main themes in relation to the relationship between sustainability and well-being were raised. First, individual behaviour is not necessarily rational or consistent, and may be based on self-image e.g. driving to the shops simply to recycle. Second, there can be conflicts between different concepts of individual well-being. For example, owning a BMW could be good for psychological well-being if it

enhances feelings of autonomy and social status (to the extent that social status is a basic need) but bad for subjective well-being if the costs of running an expensive car make the owner feel unhappy.

4.1.2 Presentation on transport and air quality

Steve Simmons gave a presentation on "Urban Transport and Accessibility in Sheffield City Council". Steve Simmons works for the Sheffield City Council as an environmental health officer.

The UK national strategy on air quality has led to the review of air quality in Sheffield. One of the major issues is air pollution and its major cause nowadays is traffic, as opposed to industries which were largely responsible in the past. A private car is something that most people aspire to; it has become a symbol of economic success and this is true all around the world, the more affluent own cars. In recent years, the economy in South Yorkshire has risen and it is no coincidence if the amount of cars on the roads has followed the same trend. Added to this is the fact that the negative aspects of road vehicles are underplayed: there is less focus on road accidents, costs to the environment, detrimental effect on fitness/health and community severance but more weight is put on the 'feel good factor' of driving one's own car. Furthermore, urban design and planning has been centred around the car, with the classic example of Meadowhall which despite good public transport links (Supertram) offers free parking. Steve discussed possible solutions, including making public transport more attractive, setting new social norms that discourage the use of private vehicles, congestion charges, low emission zones, encouragement of car clubs, and speed management on motorways. At the same time, it was pointed out that there seems to be some concern from decision makers that these measures could scare away development and investment in South Yorkshire.

In the discussion that followed, the issue of the impact of social norms and how to change them were addressed. The example of drink-driving, which used to be acceptable but now has a certain degree of stigma attached to it, was used to highlight how norms can change over time, in this case partly as a result of government campaigns. Economic arguments could also be used as an argument against unnecessary car use: "think how much money you would save if you didn't have a car". The way public transport was perceived by many as being primitive, inefficient, unsafe etc., came up as a key issue on many occasions, and challenging these perceptions was crucial to any policy designed to reduce car use. The importance of political will and strong leadership was also recognised, as evidenced by the Mayor of London's ability to push through the Congestion Charge. This was originally opposed by the public but now has widespread support, as the benefits from less traffic and cleaner air have been experienced directly

4.1.3 Presentation on the context of local governance

Fay Blair gave a presentation on "Local governance policy context". Fay is a consultant and provides advice, research and training to local authorities on issues related to sustainability and best practice. Her presentation is summarised as follows:

Local governments are responsible for looking after the community and for delivering sustainable development and there are many policies across several different central governmental departments. However, the link between national government and local authorities incorporates many barriers and blockages that hinder the transfer of effective ideas and policy. There is a feeling within local government of a lack of coherence and consistency. Interpreting a common usage of the concepts of sustainability and well-being becomes important. Local authorities are monitored nationally and are set a list of goals, which they are keen to attain. There is no coherent structure for doing this and the goals are reached by any means possible, including by using the private or voluntary sectors. However, this results in local authorities doing what they have to rather than what they would like to do. This target-setting culture means that the true spirit of the policy is left behind when trying to reach objectives. When local authorities refer to key political documents, unless definitions of concepts of sustainable development are clear, consistent and give rise to practical interpretation, things will not happen. Ambiguity of concept and definition doesn't encourage constructive action and what the central government dictates doesn't necessarily filter down to the local level. All of these considerations impact upon how policy on sustainable development and wellbeing can be implemented.

4.1.4 Presentation on wind power and aesthetics

Paul Selman gave a presentation on "Landscape Aesthetics: a conflict between wellbeing and sustainability? The case of wind energy development". Paul Selman is the Head of the Department of Landscape at the University of Sheffield. Paul's research has focused on sustainable development at the local level, particularly in a rural context and increasingly on the protection and reinforcement of rural landscapes, researching ways of joining-up actions to achieve integrated approaches to the planning and management of such areas.

The presentation started with a quote from Pasqualetti, 2001: "There may be no more conspicuous example of a conflict between society and technology than a wind energy landscape." Surveys on wind turbines and wind farms show that people either "love them or hate them". Even voluntary and environmental organisations seem divided. For example, Friends of the Earth being strong proponents while CPRE (Campaign to Protect Rural England) staunchly opposes large scale wind farming. Well-being is linked to landscape beauty; there has been a long discourse on the beauty of "remote and wild" areas, "unspoilt" surroundings, with the new buzzword of "tranquillity". However, given that wind power is the most cost-effective form of renewable energy, it seems to be the road that the government will take. Perceptions are ambivalent: For example, according to a recent survey commissioned by DTI, 81% of respondents were in favour of wind power, and just over 60% would be happy to live within 5km of a wind power development. According to an Irish study which simulated illustrations of wind farm developments and recorded people's reaction to the, 45% were in favour, 25% were against and 30% were neutral. However when he more real the development came, the more opposition the development met. In abstract, they are fine but when reality kicks in,

they're not. Overall, there is a widespread consensus that wind energy can make a major contribution to sustainable development, and official policy supports a number of large scale onshore developments. However, there are unresolved questions about the balance between sustainability and wellbeing, such as the extent to which public acceptance of wind energy is based on knowledge of the overall infrastructure associated with developments, or varies according to proximity to residence. In particular, there may be a conflict between the scale of wind farms necessary to make a significant contribution to the national energy budget, and the size, clustering and locations compatible with perceived and actual wellbeing.

In the discussions that followed, it was pointed out that studies of peoples' views need to make appropriate comparisons between different alternatives. That is, they need to compare people's perceptions of the impact of wind farm installations on the landscape with that of, say, a coal-fired or even nuclear power stations, not just wind farms versus no wind farms. Other issues raised were the link between well-being and aesthetics, and the scale or the way in which the wind farms are planned and built. Many may be in favour of a few turbines in a location but not 20-30.

4.2 Group activities

Participants were divided into three groups, corresponding to the three different accounts of personal well-being that were the focus of our discussions i.e. preference satisfaction, flourishing or psychological well-being, and subjective well-being. Each group was asked to consider how their account of well-being complements or conflicts with sustainable development. The groups were instructed, where possible, to consider the three fields covered in the presentations; namely transport, waste and recycling, and wind power.

4.2.1 Report back from the preference satisfaction account group

Much of the discussion revolved around the degree to which what we want should be based on good information, and precisely how 'good' the information has to be. If all decisions are informed and anti-social preferences are defined as those that are unsustainable, then the preference satisfaction account is entirely consistent with sustainability and conceptually no conflict exists between them. The question is: who decides what constitutes relevant information, anti-social norms (and indeed what is defined as sustainable? This is a largely unresolved question, which academics across a range of disciplines and policy-makers should engage with in a more direct way than they have hitherto.

Most of us are not especially well-informed about how our actual preferences impact upon our own well-being (Kahneman, 1997). Of course, preferences may be compatible with maximising well-being and with sustainability purely by chance e.g. some people may prefer to cycle to work quite apart from any knowledge about how this might make them feel better or any concerns for the environment. However, even in those circumstances where we are concerned with the well-being of others, we are likely to be even less informed about the impact of our choices on others.

This means that there is a role for leadership (e.g. of the kind referred to above in relation to the Congestion Charge) and the use of education and advertising to inform the public about which choices may be more in accordance with their underlying preferences. The group also suggested that we require a better understanding of the gap between attitudes/beliefs (many of which would support sustainability) and actual behaviour (much of which does not support sustainability).

4.2.2 Report back from the psychological well-being account group

The main part of the report back addressed the issue of whether a measure of psychological well-being could be used as an indicator of well-being in a sustainable development context. Specifically, to what extent would such a measure be appropriate for DEFRA's 20th headline indicator, "Well-Being"? Two issues were identified: process and product. Regarding the process, the attributes given by the psychological well-being account (engagement, mastery, social relatedness, autonomy etc) have different emphasis across cultures, where cultures include disparate socio-economic or even demographic groups. The main concern was on how to define, measure, and collect data on these in an increasingly multicultural society. Also raised was the point that if the measurement method is too complex we will not be able to use it.

Regarding the product, assuming the above attributes can be measured satisfactorily, the question is whether or not the flourishing account is compatible with sustainable development, and the answer depends on the elements of psychological well-being. Firstly, the two concepts can be compatible because by doing something, we achieve well-being. For instance, recycling helps us to reach mastery; if we do something that is culturally acceptable, then we get a positive feeling and vice versa.

However, the two concepts can also conflict with each other. For example, achieving relatedness could be problematic depending on the type of social bonds that occur. In particular, there was a discussion about the pros and cons of "bonding and "bridging" social capital (Putnam, 2000). First, positive "bonding" social relations can occur by interacting with members of social groups to which one belongs (e.g. religious or sport groups). Second, "bridging" social relations can also be built across social groupings (e.g. friendships between religious communities or sports teams). It was noted that not all the externalities of social capital are positive e.g. some networks have been used to finance and conduct terrorism (Helliwell & Putnam, 2004). There may then be a trade-off between bonding and bridging social capital such that the better the intra-group relations, the poorer the inter-group relations. It is unclear how the well-being associated with each type of social capital should be weighted in any policy context.

4.2.3 Report back from the subjective well-being account group

The group reviewed each discussion theme (recycling and waste, transport, wind power) looking at areas creating synergies and conflicts between sustainability and well-being, and each of these components were reported back. These demonstrated how the answer to

the synergy or conflict question there again could cut both ways. The discussions highlighted the internal tensions within the concepts of well-being and sustainability. For instance, there is evidence that people's personal SWB is compromised by a long commute to work. However, even if people are aware of this they may still be prepared to commute in order to increase their children's well-being by having a bigger house with a garden in the suburbs. Also, we want people to come together but it could manifest itself as a fight against wind farms or a club for people of the same socio-economic group (again highlighting the possible tensions between bonding and bridging social capital).

The issues of intra-personal and inter-personal equity were themes that were returned to in various ways during the discussions. Policies which lead to short term reduction of individual well-being may be balanced by the long term well-being of that individual. For example, in the short run environmentally friendly activities (better waste management, less car use, fewer flights etc.) are likely to create a cost to the individual in terms of additional work, reduced time for activities which increase SWB (e.g. seeing friends), and reduced positive experiences (e.g. from travel). These costs may be balanced to some extent by the benefit the individual may experience from avoiding the consequences of environmental degradation and climate change. However, given the collective nature of the problem each individual will have an incentive to free ride upon the benefits from the environmentally beneficial actions of others.

More positively though, people have a fairly strong capacity to adapt to change (Frederick and Loewenstein, 1999), which means that initial changes in behaviour may appear more costly to the individual than they will turn out be in the long run. Many individuals may have a fear of change, partly because the costs in the short-run are likely to be greater than those incurred in the long-run. Whilst the transition to different consumption patterns may temporarily reduce well-being, in many cases, individuals will adapt to their new behaviour. From this perspective, environmentally beneficial actions may be well-being enhancing even at the individual level.

The issues of inter-personal equity lie at the heart of the relationship between SWB and sustainable development. There are potential trade-offs between the SWB of different groups as defined geographically (e.g. those living near wind farms and those living elsewhere), and inter-temporally (e.g. the current generation and future generations). Adopting a society wide perspective, in which the SWB of all members of society was considered, would remove some of the concerns with geographical and other distributional trade-offs. However, this raises the issue of how individual well-being should be aggregated across people. For example, it is unclear whether every individual should be weighted equally or whether certain groups (e.g. those that are disadvantaged) should be given greater weight. This is an issue that is underdeveloped, both theoretically and empirically, in terms of public preferences.

It is problematic to frame the discussion of synergies and conflicts between SWB conceived as individual current life satisfaction (or over the last 12 months) and sustainable development. Apparent conflicts may arise due purely to the time frame considered, which would not arise if a longer time frame was considered. Adopting a

longer time perspective requires a means by which SWB measures can be aggregated over time, which is also an underdeveloped area within the SWB literature.

4.3 Round table discussions

The report back from the three break-out groups was followed by a general discussion of the main themes addressed at the workshop. Both concepts of sustainability and well-being bear diverse meanings for different people, organisations or governing authorities. The lack of conceptual clarity is exacerbated by the lack of empirical evidence showing any clear relationship between any of the various definitions of sustainable development and well-being. There are, of course, many indicators of sustainable development and many indicators of well-being but very little attempt to systematically relate them to one another.

Besides issues of measurement, the main focus of the discussion was on the tension between self-interest and collective good. All accounts of well-being stress the importance of placing the individual in a social context and so, if collective actions are also in individuals' interests, then individuals will carry out these actions. However, many of the examples provided above suggest that individual actions (e.g. to use the car for short journeys) are often at odds with the health and well-being of others.

A key question is how to encourage individuals to take account of the well-being of others. One way of grounding individual action in collective benefit is through beliefs about whether other people are "doing their bit" as well. Given the magnitude of some of the issues, e.g. global warming, people may feel their actions don't really make much of a difference but if they trusted that others were also being co-operative then a belief could arise that, together as a society, we could make a real difference. Policy makers may want to consider how to communicate to people that others around them are following the recommendations and outline exactly the implications of their personal actions. For example, an "Ecological Footprint" questionnaire could be used to highlight the wider environmental consequences of individual action.

There was also much discussion of the relationship between short-term well-being and long-term well-being. Sustainability is concerned with long-term effects and so all accounts of well-being need to take sufficient account of future flows of well-being. It was recognised that the temporal dimension was largely missing from many of the discussions around well-being. An important part of the policy debate was in trying to find ways in which individuals could be convinced that smaller short-term sacrifices in well-being (however it is defined) may result in larger long-term gains in well-being in the future.

To account for the impact of individual actions on ourselves and on others, now and in the future, requires government intervention. This requires governments to have a clear mandate for intervention, or else the political will to push through measures that, on the face of it, may be seen to conflict with individual current well-being. One of the hurdles to long-term sustainability and well-being is the short-term focus of much of government

policy that results from the election cycle. Therefore, we could instead look to organisations that have a longer-term focus.

A further hurdle was seen to be presented by the conflicting interests and objectives of different government departments. For example, the Treasury is more concerned about economic growth than Defra. At the local level, the participants from Sheffield Council felt that clear direction was needed from the centre for the successful implementation of policies at the local level. It was suggested that all policies could be appraised by a "well-being impact assessment", with key indicators of current and projected future well-being.

5. DISCUSSION

At a very general level, there are many examples of where well-being and sustainable development can complement one another and many cases where they will be in conflict. For example, the majority of respondents to the questionnaire indicated some tension in the current regulatory context between increasing well-being and increasing sustainability. However, the literature review, questionnaire and workshop have all highlighted a lack of shared common understanding about exactly what is meant by the terms 'well-being' and 'sustainable development'.

Only by having a common set of definitions about these concepts is it possible to meaningfully discuss the synergies and tensions between them. The diverse array of definitions provided in response to our questionnaire highlights the need to ensure that coherent definitions of concepts permeate through academic, policy and practitioner sectors. We are more familiar with the well-being literature and much has been written about the circumstances under which different accounts will generate different or similar results. We are unaware of the analogous literature in relation to environmental versus justice-focused sustainable development but our, admittedly non-systematic, literature review only really addressed the issue in relation to economic growth, which could be seen as compromising the environment yet having the potential to improve social justice.

There is certainly the need for more theoretical research into the conditions under which the different accounts of well-being are consistent with one another and we suspect that more is needed in relation to the conditions required for the different accounts of sustainable development to be consistent with one another; that is, what is needed for them to produce the same conclusions and policy implications? Through an exercise of this kind, it may be possible to formally establish the conditions under which all concepts of well-being and all accounts of sustainable development will produce the same results.

At the heart of any conceptualisation of well-being in the context of sustainable development policy must lay the ability to identify and quantify the trade-offs that exist between 1) elements of an individual's current well-being; 2) his current well-being and his well-being in the future; 3) his current well-being and the current well-being of other people; 4) his current well-being and the well-being of others in the future. How well-being will be conceptualised by policy-makers will ultimately turn on their normative judgements about the implications that follow from these various trade-offs.

On the face of it, an objective list account would seem most consistent with environmental and justice focused sustainability: all that is required is that the list contains attributes conducive to sustainable development. However, objective lists – and indeed most flourishing accounts – do not consider possible trade-offs between elements of well-being once those elements have been specified and this limits their usefulness in applied policy settings. Moreover, it is not at all clear that a consensus exists about what should be on the list of objective goods or psychological needs even if the potential trade-offs between them were recognised in policy contexts.

Much of the discussion in the literature and in the workshop focused on the relationship between preference satisfaction and sustainable development. As things stand, it seems that what people want, as expressed through their market behaviour, is not conducive to environmental sustainable development. The 'consumer society' has been criticised for its waste and lack of regard for the environment. Notwithstanding the problems associated with NIMBYism, people may also actually have 'latent' preferences for both environmental and justice-oriented sustainability that are not reflected through the market. This idea also came through from questionnaire responses, with examples such as those reported in Section 3, where respondents expressed a wish to make a difference but did not know how to without taking an extreme action like getting rid of their car.

One of the problems with preference satisfaction is that we currently do not have a good way of measuring it: we rely on income as a proxy, but that only gets to those preferences which can be satisfied through the market. If well-being is measured by income, it could only be compatible with sustainability in circumstances in which a policy led to increased income (or consumption) and improved environmental outcomes e.g. energy efficiency which lowers production costs. However, we have many other preferences which are likely to exist, such as preferences for endangered species, preferences for green space, clear air, quiet streets, protection of the planet for future generations, social justice etc. which we cannot express through the market. When well-being is measured in terms of income, it appears to conflict with both kinds of sustainable development but fully accounting for all our preferences would be likely to reduce the conflict. The problem therefore rests largely on measurement rather than with the account of well-being per se.

Given the importance of consumption for issues of sustainability, changing people's preferences as they reveal them may be a key way forward (Jackson, 2005). To aid this process, policy makers could adopt defaults which favour sustainability but at the same time, to avoid paternalism, allow for alternative behaviours (Thaler & Sunstein, 2003). For instance, a policy could be introduced whereby the default is to provide new homes with a solar panel to reduce the reliance on fossil fuels. However, people could opt out of a solar panel if they could prove that they could provide energy through other, environmentally sustainable, means. Alternatively, pension plans could be based on ethical investments (e.g. those provided by The Cooperative Bank). People could still chose to opt out of such schemes but there is evidence to suggest that they are unlikely to do so once the default is set, in part because of the social norms that are communicated by such defaults (Johnson & Goldstein, 2003; Mckenzie, Liersch & Finkelstein, 2006).

The relationship between flourishing and sustainable development depends largely on what our basic psychological needs really are. If we are driven by a need for respect from our peers (e.g. Maslow, 1957) and the need for social status (e.g. Layard, 2005), then social comparisons are necessary in order to establish where we lie in the hierarchy. However, others have argued that status reflects an extrinsic rather than an intrinsic drive and, thus, is not really conducive to our psychological well-being (e.g. Kasser & Ryan, 1996). It would be illuminating if some of the lessons from evolutionary psychology could be brought to bear here. If it turns out that social standing really is an intrinsic need, there may still be ways in which this tendency can be harnessed for sustainable ends e.g. by encouraging social norms for sustainable consumption (Jackson, 2005). People's social standing may be threatened if they behaved differently, or enhanced if they exceed social norms e.g. by cycling a particularly long distance to work, purchasing local or organic produce or donating a considerable percentage of their income to charity.

Social comparisons certainly seem to play a big part in the degree to which people are satisfied with their lives. The most recent empirical evidence on the causes of SWB suggests that absolute income, at least in high income countries, may be less important than an individual's income rank within their reference group based on locality, age, occupation etc. (Dolan et al 2006). This suggests that a general increase in income would not improve SWB. However, little consideration has been given to the possibility that social comparisons may actually lead to individuals and groups working towards a more equitable distribution of resources.

Shifting people's attention to improving social relatedness may also be helpful here. This may have the added advantage of focusing attention on the common good rather than individual benefits. It may also serve to highlight how collective action can bring benefits that individuals may not perceive as being meaningful if they think only about the consequences of their own actions. Something along the lines of the "Ecological Footprint" questionnaire could be used to highlight the wider consequences of individual action and serve to show how, if we act together, we can make a difference.

The SWB account offers a promising way of conceptualising well-being in public policy generally and sustainable development in particular. There was some suggestion across the various stages of this project that a shift from a focus on actual preferences towards SWB would reduce some of the existing tensions between well-being and sustainable development. An increased focus on SWB should also facilitate 'joined up' government. Policies emanating from one government department will typically have spill-over effects on other departments e.g. many health care policies have an effect on social services etc. If the effects on SWB from policy in one domain can be determined, and compared in the same units to the effects on SWB in another domain, then a more comprehensive evaluation of that policy can be undertaken. In this way, policies aimed at sustainable development could be joined-up by a focus on SWB**.**

However, policy is only likely to be more consistent if all departments share the same overall and ultimate objective of enhancing the SWB of the population, and thus consider

the direct and indirect consequences of their policies on SWB. Adopting a measure of well-being for the sustainability context which is inconsistent with that being used in other areas of government policy, particularly if the measures used in those other areas are considered to be 'harder' outcomes (objective health), may actually serve to marginalise policies aimed at sustainable development.

Therefore, it is vital that new projects designed to promote sustainable development and other objectives should have clear targets for SWB with appropriate incentives for policy-makers that are designed to meet those targets. Lessons about precisely what those incentives should look like can be gained from considering the effects of different incentive mechanisms on the behaviour of policy-makers across the public sector. In addition to 'leading by incentives', there is also the possibility of 'leading by example' and the various stages of this research have identified the importance that political will and strong leadership can play in driving a particular agenda forward (e.g. the Congestion Charge in London).

As noted above, there is scope for the careful selection of policy defaults that favour sustainable development. The policy relevance of such defaults is likely to be higher if they are selected on the basis of evidence. As things stand, there is very little evidence on the relationship between sustainability and SWB (Dolan et al, 2006). Ferrer-i-Carbonell & Gowdy (2005) find that environmental problems where one lives reduces life satisfaction but these findings could be picking up the effects of socio-economic status and household wealth. The detrimental effect of airport noise found by Van Praag & Baarsma (2005) is less likely to be contaminated by socio-economic factors. Rehdanz & Maddison (2003) give some indication that extreme weather is detrimental to overall happiness. There is also some evidence that living in large cities is detrimental to life satisfaction and living in rural areas beneficial (e.g. Hudson (2006) for Europe) but some of these results have been non-significant (e.g. Rehdanz & Maddison, 2003).

In future research, it would be interesting – and potentially policy relevant – to consider whether many of the things that local residents object to on aesthetic grounds (wind farms, tidal barrages etc.) do actually result in lower levels of SWB in those areas where such forms of renewable energy exist. With the increasing availability of large scale longitudinal studies of SWB, it should be possible to consider the degree to which some of the things that local residents have a 'not-in-my-back-yard' attitude towards really do result in lower levels of SWB, and how long those effects last for.

More generally, to the extent that SWB is more compatible with sustainable development than the satisfaction of actual preferences, research efforts should be directed towards a better understanding of precisely why the preferences people reveal in their market behaviour and elsewhere may not be that those maximise SWB. To the extent that what we want is based on predictions of what we will subsequently like, we are often guilty of "miswanting"; that is, of wanting things that do not make us happier or not wanting things that would make us happier (Gilbert and Wilson, 2000). Across a range of contexts, it seems that we overestimate the intensity and especially the duration of our reactions to events (Dolan and Kahneman, 2006). Moreover, it seems that people do not

take sufficient account of the fact that their preferences, reference norms and expectations may all change when their circumstances change. These findings could be used to explain why the benefits from our consumption decisions (which may have costs in sustainability terms) often fail to last as long as we expected them to.

In fact, the basic discrepancy between wanting and liking may be hard-wired into us. There is now evidence from Positron Emission Tomography (PET) scans that the pleasure (liking) system in the brain is located in the amygdala, which acts like an emotional hub, and the nucleus accumbens, which is the receiving end of brain cells that contain dopamine. The wanting system of the brain – the lateral hypothalamus – connects directly to the nucleus accumbens but is distinct from it. As the technology of neuroscience continues to develop, it should be possible to provide fresh insights into how different consumption decisions impact upon our well-being and to consider to the degree to which sustainable consumption is associated with what we enjoy best and distinct from what we want most.

At a more practical and policy focused level, there is much appeal in disaggregating SWB as experienced by the current population, as experienced in the future by the current population and as experienced in the future by future members of the population. However, as things stand, the SWB methodology is limited in its scope because of the problems of measuring and then aggregating the well-being of different populations at one point in time and across time. There is the real danger that the current well-being of a minority is used as a proxy for the current and future well-being of the majority. Additionally, how far into the future should consideration extend and should consideration extend beyond national borders? Broome (2004) raises some of the complexities involved in making comparisons between populations of different sizes and highlights the difficulties involved in accounting for the well-being of individuals who will – or would have – come into being under alternative states of the world.

However, it is possible to find out the extent to which individuals are willing to trade off their current well-being for the future well-being of other people. In the same way as it is possible to ask respondents to express their willingness to pay in monetary terms for a benefit that is experienced by other people (Dolan et al, 2003), it is possible to ask respondents what they would be willing to pay in well-being terms for that same benefit. To value an attribute which has future well-being implications requires the additional step of considering the pattern of future benefits, and the rate at which it is appropriate to trade off an individual's current benefit with their future benefit. These are issues that can – and should – be addressed by empirical investigation into the how the general public would trade-off the well-being of one group against another.

There is certainly the need for more evidence on the relationship between SWB and sustainable development. By considering the full set of consequences for all those affected by a policy decision (or at least for those considered relevant in the particular policy setting), we are more likely to produce policy outcomes that produce a "double dividend" (Jackson, 2005), where we have the ability to live better by consuming less and to facilitate sustainable development at the same time.

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Figure 1a: attitudes to government responsibility

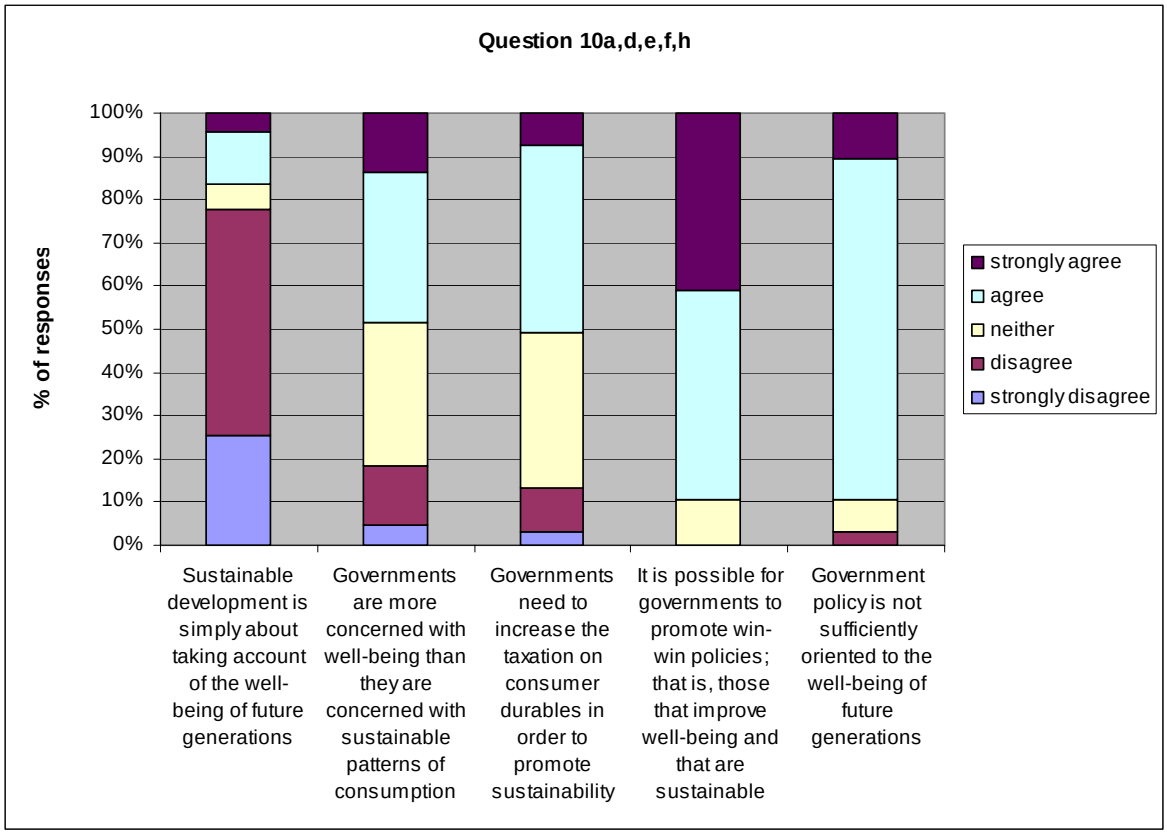
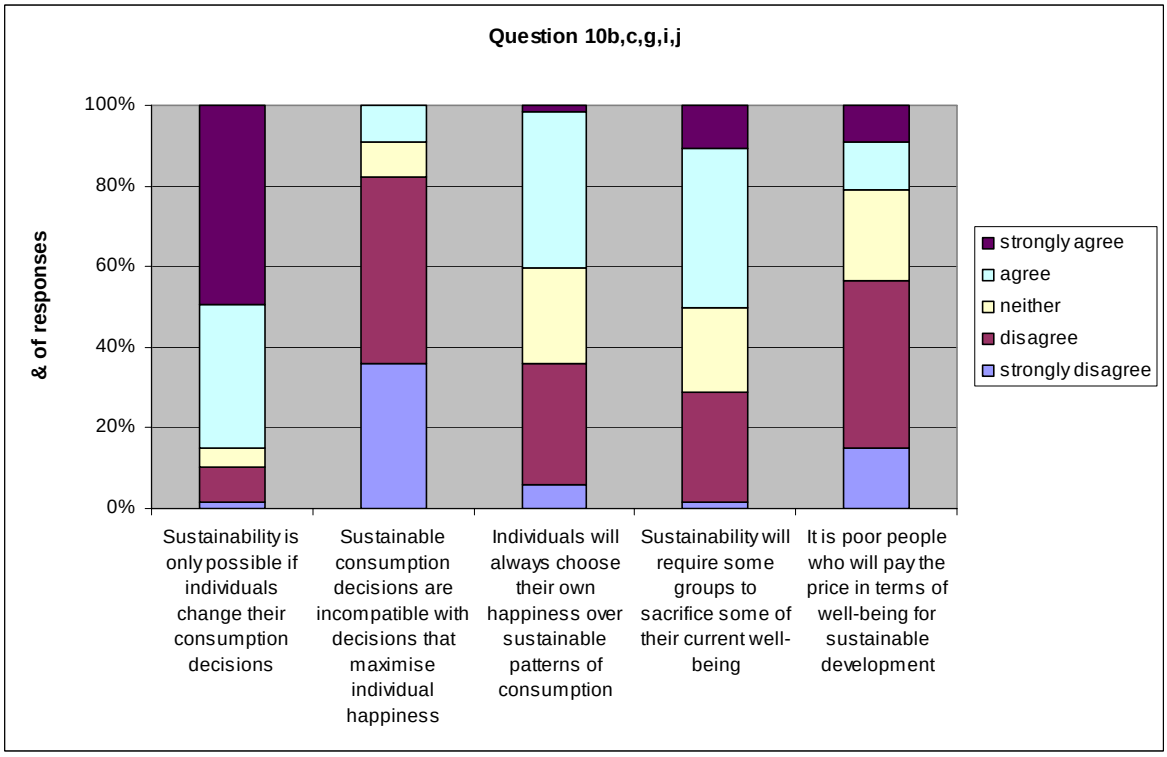


Figure 1b: Attitudes to individual behaviour



APPENDIX A: QUESTIONNAIRE

Research on the relationship between well-being and sustainable development

Principal Investigator: Professor Paul Dolan, University of Sheffield

Funder: Department for the Environmental, Food and Rural Affairs

QUESTIONNAIRE

We have funding from Defra to produce a think piece that will explore the relationship between well-being and sustainable development. The project runs from April to July 2006 and consists of a literature review, this questionnaire and a workshop.

The aim of this questionnaire is to identify how well-being and sustainability may relate to one another in the experiences of policy makers and practitioners and to ensure that the workshop focuses on issues that are of relevance and importance to the participants.

You have been identified as someone who is working in the area of sustainable development and we would very much appreciate it if you could take the time to fill in this questionnaire. It should take you no more than 30 minutes to complete. Thank you very much for helping us in this research. If you have any questions, then please email Andy Dixon: A.M.Dixon@sheffield.ac.uk.

MAIN QUESTIONS

There are a number of ways in which sustainable development and personal well-being can be defined and there are no 'correct' definitions.

1. How would you define sustainable development?

2. How would you define well-being?

3. Given your definitions, to what extent do you think there is a tension in the current regulatory context between increasing well-being and increasing sustainability?

In complete conflict ☐
Often in conflict ☐
Occasionally in conflict ☐
Not in any conflict at all ☐

4. Imagine that we were to define an individual's well-being according to the degree to which she is able to satisfy her preferences; that is, she is better off if she gets what she wants. To what extent do you think this definition of well-being is in conflict with your definition of sustainable development?

In complete conflict ☐
Often in conflict ☐
Occasionally in conflict ☐
Not in any conflict at all ☐

5. Imagine that we were to define an individual's well-being according to the degree to which she evaluates her life in a positive way; that is, she is better off if she reports a high degree of life satisfaction and to being happy. To what extent do you think this definition of well-being is in conflict with your definition of sustainable development?

In complete conflict ☐
Often in conflict ☐
Occasionally in conflict ☐
Not in any conflict at all ☐

6. Please describe how (if at all) issues of sustainable development are important in the role you have in your organisation?

7. Please describe how (if at all) issues of well-being are important in the role you have in your organisation?

8. Can you please provide an example of where well-being and sustainability have come into conflict with one another in the areas in which you work?

9. Can you please provide an example of where well-being and sustainability have complemented one another in your work?

10. Please indicate how much you agree or disagree with each statement below.

		Strongly Disagree				Strongly Agree
a.	"Sustainable development is simply about taking account of the well-being of future generations"	☐	☐	☐	☐	☐
b.	"Sustainability is only possible if individuals change their consumption decisions"	☐	☐	☐	☐	☐
c.	"Sustainable consumption decisions are incompatible with decisions that maximise individual happiness"	☐	☐	☐	☐	☐
d.	"Governments are more concerned with well-being than they are concerned with sustainable patterns of consumption"	☐	☐	☐	☐	☐
e.	"Governments need to increase the taxation on consumer durables in order to promote sustainability"	☐	☐	☐	☐	☐
f.	"It is possible for governments to promote 'win-win' policies; that is, those that improve well-being and that are sustainable"	☐	☐	☐	☐	☐
g.	"Individuals will always choose their own happiness over sustainable patterns of consumption"	☐	☐	☐	☐	☐
h.	"Government policy is not sufficiently oriented to the well-being of future generations"	☐	☐	☐	☐	☐
i.	"Sustainability will require some groups to sacrifice some of their current well-being"	☐	☐	☐	☐	☐
j.	"It is poor people who will pay the price in terms of well-being for sustainable development"	☐	☐	☐	☐	☐

BACKGROUND QUESTIONS

The following questions ask about some background information, and are there to provide us with more information that may help us evaluate the questionnaire.

1. What is your gender?

Male	☐
Female	☐

2. What was your age at your last birthday?

18-29	☐
30-39	☐
40-49	☐
50-59	☐
60-69	☐

3. Do you have any children or grandchildren under the age of 16?

Yes	☐
No	☐

4. How dissatisfied or satisfied are you with your life overall?

☐ ☐ ☐ ☐ ☐ ☐ ☐

Not satisfied Completely satisfied

Finally, which of the following professional areas best describes your current professional role? Also, please indicate if the emphasis of your particularly role is at the local, regional national or international level. You may tick more than one box if it is appropriate to your role#

- ☐ Policy development
- ☐ Practitioner
- ☐ Academic research
- ☐ Non-academic research
- ☐ Business
- ☐ Other
- ☐ Emphasis at local level
- ☐ Emphasis at regional level
- ☐ Emphasis at national level
- ☐ Emphasis at international level

APPENDIX B: WORKSHOP PROGRAMME AND ATTENDEES

Background to project

The project specification asked for a think-piece that would explore the relationship between well-being and sustainable development. Key questions for the research include:

- How might a focus on well-being in a range of policy domains be in conflict with or support sustainable development?
- How is well-being best conceptualised in sustainable development policy contexts?
- If sustainable development policy makers were to focus on well-being to a greater extent or in a different way, would it facilitate more consistent, coherent and/or transparent decision making?
- How might policy makers achieve a new well-being focus in practice?
- What sort of policy outcomes might result from this approach?

The project comprises four related strands, the first involved a review of the literature on the relationships between well-being and sustainable development. The second consisted of a questionnaire to elicit a range of perspectives on these relationships. The third consists of the workshop to which you have been invited which brings together a range of experts to focus on the questions raised in the project specification. The final strand of this project will involve writing a report for Defra. In addition, we anticipate that the workshop will lead to opportunities for further collaboration in terms of joint funding proposals and publications.

We have invited an expert group of people to this workshop in order to gain a better understanding of the relationship between sustainable development and wellbeing. Your willingness to participate is much appreciated. We hope that you enjoy the workshop and that you benefit from the opportunities to network and debate with colleagues from different disciplinary backgrounds around this emerging research theme.

The programme for the workshop is provided overleaf

You should also have received a copy of the literature review as an e.mail attachment

For directions to the workshop venue please visit http://www.shef.ac.uk/visitors/

For further information please contact Dr Melanie Knight on 0114 2227121 m.knight@shef.ac.uk

SDWB workshop programme

Time	
	DAY 1 (13th June)
13.30	Introduction from Paul Dolan; overview of interim findings of the project
14.30	*Coffee*
14.45	Invited presentations to illustrate relationships between SD and WB Anna Scott (UoS) – Sustainable development at household level Steve Simmons (Sheffield City Council)– Urban transport and accessibility Fay Blair (Global to Local)– Local governance policy context Paul Selman (UoS) – *Landscape aesthetics + wind energy* Discussions
16.15	*Coffee*
16.30	Breakout groups to discuss tensions and synergies between sustainable development and wellbeing in different contexts
17.30	End of formal activities on day 1
18.00	Tables booked at East 1. East Asian Noodle bar, short walk from University.
	DAY 2 (14th June)
09.00	Continue with breakout groups from Day 1
10.00	*Coffee*
10.15	Breakout groups report back to main group + group discussions
11.30	*Coffee*
11.45	Summarise, make recommendations for policy and research
13.00	Close and depart

Location is the SG-Boardroom, St Georges Complex, Mappin Building, Mappin Street, University of Sheffield, Sheffield

For directions to the workshop venue please visit: http://www.shef.ac.uk/visitors/

For further information please contact Dr Melanie Knight on 0114 2227121
m.knight@shef.ac.uk

ATTENDEES

Paul Armsworth, University of Sheffield
Katharine Beaney, University of Sheffield
Fay Blair (Presenter), Global to local
Tim Cooper, Sheffield Hallam University
Paul Dolan (Chair), University of Sheffield (now Imperial College London)
Liddy Goyder, University of Sheffield
Mike Grimsley, Sheffield Hallam University
Melanie Knight, University of Sheffield
Margarida Monteiro de Barras, Cranfield University
Caroline Oates, University of Sheffield
Celine Pagnier, University of Sheffield
Neil Parry, East End Quality of Life Initiative
Tess Peasgood, University of Sheffield (now Imperial College London)
David Phillips, University of Sheffield
Barbara Rimmington, East End Quality of Life Initiative
Clare Rishbeth, University of Sheffield
Anna Scott (Presenter), University of Sheffield
Paul Selman (Presenter), University of Sheffield
Steve Simmons (Presenter), Sheffield City Council
Aki Tsuchiya, University of Sheffield
Chasca Twyman, University of Sheffield
John Wainwright, University of Sheffield
Matt White, University of Sheffield
Neil Witney, DEFRA
William Young, University of Leeds

Break-out groups headed by:

Aki Tsuchiya (preference satisfaction account of well-being)
Tess Peasgood (subjective well-being account)
Matt White (flourishing account)