



West Midlands
Regional
Observatory

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Understanding the Regional Index of Sustainable Economic Wellbeing (R-ISEW) as an indicator of sustainable economic growth

26 February 2009



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Version 2.0 - final signed off version
26 February 2009

Research Team
West Midlands Regional Observatory
Level 3, Millennium Point
Curzon Street
Birmingham
B4 7XG

Telephone: 0121 202 3250
Email: enquiries@wmro.org
Web: www.wmro.org

Table of contents

TABLE OF CONTENTS	3
1 INTRODUCTION	4
2 BACKGROUND TO THE DEVELOPMENT OF THE R-ISEW	6
3 CONSTRUCTION OF THE ISEW	8
4 WHAT DOES IT TELL US?	10
4.1 Economic Factors	13
4.2 Social Factors	16
4.3 Environmental Factors	19
5 LINKS WITH REGIONAL POLICY ISSUES	24
5.1 Global Challenges	24
5.1.1 Climate Change & Energy security	24
5.1.2 Continued globalisation	25
5.1.3 Demographic change	25
5.1.4 The march of technology	25
5.2 Regional Challenges	25
5.2.1 Skills, Enterprise & Innovation	25
5.2.2 Transport	26
5.2.3 Economic Inclusion	26
5.3 The Regional Spatial Strategy	26
6 REGIONAL-LEVEL POLICY LEVERS TO INFLUENCE THE R-ISEW	28
7 SUMMARISING THE REGIONAL PICTURE	29
7.1 Which policy levers will have the greatest impact?	30
FULL DOCUMENT INFORMATION	32

1 Introduction

It is increasingly recognised that genuine and sustainable development comprises more than simply economic growth as measured by changes in GVA. Therefore, the Regional Index of Sustainable Economic Well-being (R-ISEW) was chosen as one of the six headline indicators to measure the performance of the West Midlands Economic Strategy (WMES). The R-ISEW is an attempt to measure the portion of economic activity which delivers genuine increases in our quality of life - in one sense 'quality' economic activity that contributes to sustainable growth and well-being.

The 'Local Democracy, Economic Development and Construction' Bill which is currently before parliament will implement the sub national review. The supporting policy document¹ on developing regional strategies defines **sustainable economic growth** as:

"...economic growth that can be sustained and is within environmental limits, but also enhances the environment and social welfare, and avoids greater extremes in future economic cycles".

The R-ISEW will provide a valuable means of measuring the region's success in achieve sustainable economic growth.

The R-ISEW impacts on the work of many areas of the WMES and AWM and its partners and can be influenced in many small ways; to make best use of it as a monitoring tool involves understanding how it works. The R-ISEW will also be valuable in measuring the impact of the Regional Spatial Strategy and the future influence of the Single Regional Strategy (SIRS).

This briefing note gives an overview of the R-ISEW: why and how it was developed, what it tells us and where it can be influenced by, and used to monitor, activities carried out by AWM and regional partners.

¹ 'Local Democracy, Economic Development and Construction Bill: Policy Document on Regional Strategies', Communities & Local Government, January 2009

One year ago, nef (the new economics foundation) produced the first complete set of Regional Indices of Sustainable Economic Well-Being (R-ISEWs) for the nine Government Office Regions of England. R-ISEW is a measure of how much a region's economic activity contributes to, and detracts from, well-being, and how sustainable this activity is. It is an adjusted economic indicator which attempts to incorporate costs and benefits not traditionally measured in monetary terms. By monetising social and environmental issues, it brings them into a single analytic framework with economic ones, allowing us to explore trade-offs, and to assess whether economic well-being is really increasing sustainably in a given region. As a monetary figure, the R-ISEW can be compared with Gross Value Added (GVA), and other economic indicators. At the same time, exploring the R-ISEW's 20 separate components helps us to understand a fuller story of how economic well-being varies over time.

This year's results reveal that 10 years of improving sustainable economic well-being between 1994 and 2004 have come to an end and that, for England as a whole, and for most regions, sustainable economic well-being was on the decline by 2006, well before GDP growth for the UK halted in September 2008. The R-ISEW per capita for England for 2006 was £10,578, some £8,503 below GVA per capita for that year, and £145 per capita below the 2004 R-ISEW (a drop of 1.3%). The principal reasons for this decline appear to be slowing growth in consumer expenditure, an economic model which has invested less and less in its own capital stocks, growing trade deficits, rising long-term environmental damage, and continuing resource depletion.

At this stage the R-ISEW would be difficult to translate to sub-regional level due to the quality of data for some of the components below regional level, not least GVA.

2 Background to the development of the R-ISEW

Gross Domestic Product (GDP) has long been used as an overview measure of economic success, and is often taken as a measure of societal progress. Rising GDP traditionally symbolises a thriving economy, more spending power, increased family security, greater choice, richer and fuller lives, more public spending and better public services. At the regional level, this function has in recent years been taken over by Gross Value Added (GVA) which operates as a kind of proxy for GDP. As measures of progress, GDP/GVA appear initially to have much to recommend them.

There are, however, a number of reasons to view this direct equation of national or regional income and well-being with caution. GDP says nothing about how sustainable the production of goods and services is; numerous authors have pointed to the social and environmental costs associated with rising economic output. Critics suggest that the environment is often included on the wrong side of the balance sheet because if someone first pollutes and then another person cleans the pollution, both activities add to GDP - making environmental degradation frequently look good for the economy. Others have pointed to the potential divergence between material gains and psychological or social well-being. At the very least, it is clear that there are a number of factors - such as physical and mental health, family security, environmental quality and social cohesion - which contribute to well-being, but which are not captured by conventional measures of economic output at all.

Economists have produced a number of alternative or complementary measures to GDP. One of the most prominent is the 'Index of Sustainable Economic Wellbeing' (ISEW). This takes basic GDP data and makes various corrections to it based on positive and negative impacts associated with that growth. By converting social and environmental costs and benefits into a common unit, this approach allows trade-offs to be calculated transparently, and in a format that policy makers and economists are already familiar with - currency.

The ISEW is therefore a monetarised indicator of economic well-being and quality of life - essentially a macro-level cost-benefit analysis. This can then be compared with the traditional measure of economic well-being - GVA. The gap between the two can be viewed as a kind of efficiency indicator: how well is a country or region translating economic growth into sustainable well-being for its citizens?

ISEWs in various forms have been calculated for regions worldwide. However, as the value of the adjustments made are all inherently subjective, the results do not allow comparisons with elsewhere. English Regional Development Agencies are tasked with the challenge of encouraging sustainable development in their regions, with the ultimate aim of achieving high levels of social and economic well-being within environmental limits. To assist with measuring progress towards this the Regional ISEW (R-ISEW) is now being calculated simultaneously for all the English regions with a common methodology developed by the New Economics Foundation (NEF).

It must be noted that even at the national level, constructing such indicators is a formidable task. At the regional level, the task is compounded by limitations in the availability of regional data. The ways of calculating the different components (as well as the choice of components) of any ISEW have inevitably been criticised for being arbitrary and subjective. The final R-ISEW for any region as calculated by NEF cannot be taken as a definitive figure; it is the trends in the R-ISEW and its component parts, and the differences in patterns between regions, which are informative to policy-makers.

A continuing source of uncertainty in constructing an R-ISEW is the difficulty of assigning monetary values to social and environmental factors. Monetary estimations can involve assumptions or value judgements which may be difficult to justify on any concrete first principles - for instance, climate change science is still in its infancy and there are simply no definitive answers to the question of how much climate change will 'cost'.

While debate will inevitably remain about the composition and calculation of the R-ISEW and the methodology to date has evolved, the R-ISEW described here will remain fixed until 2010. This will enable regions to use the information to share successful strategies, coordinate policy and monitor relative progress. Data is available for 1994 through to 2006, with the 2006 R-ISEW report² having been released by nef in October 2008.

² The 2008 R-ISEW (regional index of sustainable economic well-being) for all the English regions, nef, October 2008

3 Construction of the ISEW

As with GVA the ISEW starts with the **economic benefits** derived from consumer expenditure as its basis. This is adjusted for income distribution. It then makes several other additions to/ subtractions from this base data to respond to the criticisms of GDP/GVA , as follows:

- Adjustments for **social benefits** are added that are not accounted for in personal consumption figures e.g. domestic and voluntary labour.
- **Social costs** are deducted such as expenditures that merely defend our quality of life rather than enhance it.
- Estimates of **environmental costs** are then deducted e.g. pollution and resource depletion.

These costs & benefits are based on calculating financial estimates of 24 different domains and draw on at least 50 different official data sources.³

Table 1: ISEW Adjustments to Consumer Spending

	Benefits	Costs/adjustments
Economic	Personal Consumption	Capital Investment Net International Position Services - Consumer Durables
Social	Unpaid Domestic Labour & Voluntary Work Public Health & Education Expenditure	Family Breakdown Crime Income inequality Commuting Car Accidents Industrial accidents

³ For full details of the data sources used in compiling the R-ISEW, see New Economics Foundation (May 2008) "Measuring Regional Progress" Appendix 4
http://www.advantagewm.co.uk/Images/R-ISEW%2020080528_tcm9-9543.pdf

Environmental		Climate Change Loss of farmland Loss of habitats Water & Air pollution Noise Pollution Pollution control Resource Depletion Long-term environmental damage (greenhouse gases)
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4 What does it tell us?

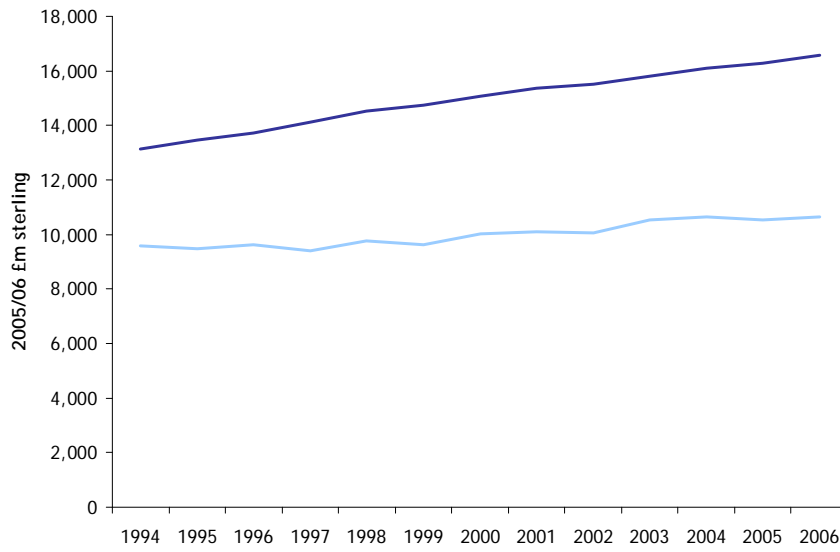
Figure 1 below shows the difference between the R-ISEW and GVA per capita for the period 1994 to 2005. In all regions the overall R-ISEW per capita is lower than GVA, due to the deductions set out above, though the gap varies; Figure 2 shows the 2005 picture for all the English regions.

The West Midlands region is in the middle rank both in terms of GVA and R-ISEW. However, whereas it is sixth place in terms of GVA it sits at fifth place in terms of R-ISEW. This indicates that in relative terms, the region has a higher level of economic well-being than its GVA would suggest. However, the gap between GVA and R-ISEW has widened in the region since 1994, as has the relative position. This can be seen on Figure 3 which shows trends for all regions.

In 1994 the ISEW for England was 57% of GVA. By 2006 this had decreased to 55%. Similarly, the gap between ISEW and GVA per capita widened in the West Midlands over this period, ISEW accounted for 73% of GVA in 1994 compared to only 64% in 2006. In 1994 the region sat at a close third place behind the North West and the South West; by 2006 it had been overtaken by the North East and East Midlands and its position was only slightly ahead of other regions. This shows that overall well-being as calculated by the R-ISEW is not increasing as fast as GVA in both absolute and relative terms.

Figure 1

West Midlands R-ISEW and GVA per capita 1994-2006

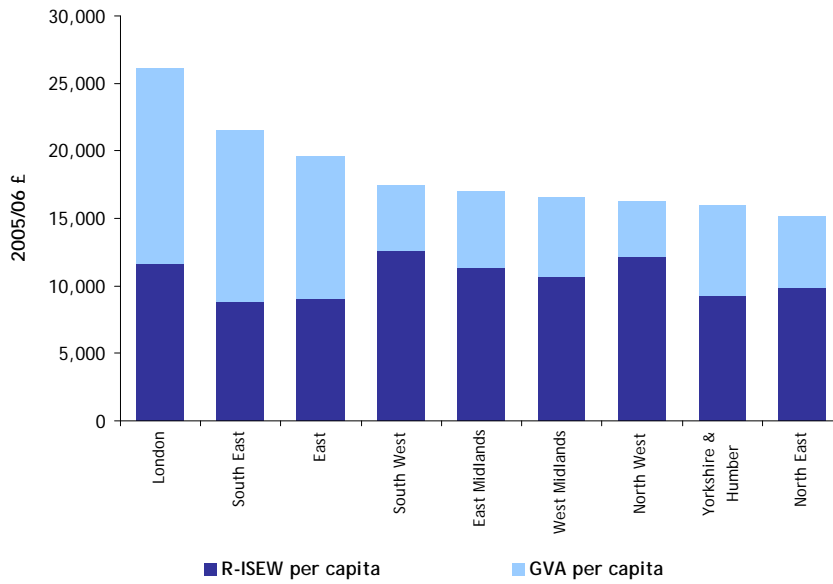


Source: ONS regional accounts, ISEW

West Midlands Regional Observatory 2008

Figure 2

R-ISEW and GVA per capita for all the English regions 2005/6

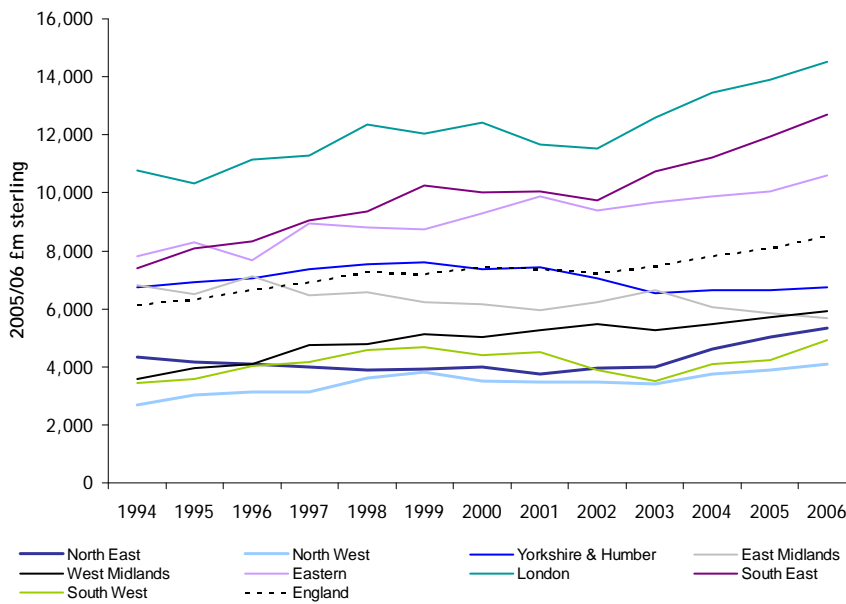


Source: ONS regional accounts, ISEW

West Midlands Regional Observatory 2008

Figure 3

Gap between ISEW and GVA per capita, by region, 1994-2006



Source: ONS regional accounts, ISEW

West Midlands Regional Observatory 2008

To understand regional patterns we need to explore the component patterns. Given the summative methodology of the ISEW, it is *absolute* differences in values across regions for each component that determine their importance in shifting overall R-ISEW, rather than *relative* differences. For example, costs of noise pollution in the West Midlands were nearly twice as high in 2006 as in London. However, neither figure (at £84 and £49 per person respectively) is large compared with, for example, the costs of long-term environmental damage (at £1,884 and £2,280 respectively for the two regions).

However, when using the R-ISEW as a comparison tool to measure the relative progress of the West Midlands against other regions, we need to look at the range of values across regions. Some adjustments, while being large, have very little variation across regions. An example is the adjustment for depletion of non-renewable resources - this accounted for a negative adjustment of between £1,757 and £2,006 per capita in 2006 - a range of just £249. By contrast, the adjustment for net international position ranged from a positive per capita adjustment of £1,092 in the East Midlands to a negative adjustment of £3,704 for the South East - a range of £4,796. To some extent this reflects the availability of quality data at a regional level. However, in compiling the R-ISEW 'Measuring Regional Progress' report NEF have indicated that for many components there is no observable reason for differences between regions and that further investigation is necessary.

Increases in GVA have a corresponding effect on the ISEW and, overall, the main drivers of the R-ISEW remain the economic factors. Income-adjusted personal consumption, the cost of household labour & volunteering and public expenditure on health & education account for the greatest value adjustments. However other factors, while less substantial in terms of adjustments, can be influenced by regional policy.

The following sections set out the main components of the R-ISEW for the West Midlands, what they tell us and where there is potential for regional policy to influence the index. The per capita figures for the West Midlands and England are given to indicate the range and value of the adjustments made for each component.

4.1 Economic Factors

The initial basis for the R-ISEW is personal consumption - final household expenditure - as this is an indicator of the value which individuals assign to the goods and services through which welfare is provided. As might be expected there is considerable disparity between the regions. The West Midlands had the second-lowest consumer expenditure of all regions in 2006 (as it did in 1994) at £11,891 per capita, against an all-England average of £12,997.

Table 2: Calculation of Economic Factors

ISEW Factor	Calculation	West Midlands 2006	England 2006
Consumer expenditure	Household final consumption expenditure. National figures from the ONS Blue Book, which is based primarily on information from retailers. Regional figures derived using data from the Expenditure and Food Survey.	£11,891	£12,997
Net capital growth	Growth in capital stocks net of labour force growth.	+ £198*	+ £134
Net international position	For a nation, this is the balance of payments, adding exports and income, subtracting imports, and adjusting for current account transfers. Regional estimates are determined using a combination of regional trade data, consumer expenditure on services and GVA, and are calculated on a three year rolling average to iron out often sharp yearly fluctuations.	- £703	- £683
Adjustment for consumer durables	The baseline consumer expenditure figures include all expenditure on consumer durables; in welfare-theoretic terms this has been criticised for failing to treat durables as household capital. The purchase of durable goods such as washing machines provides a household with a flow of valuable services for some years. To adjust for this, the difference between expenditure on and the service flow from consumer durables is estimated per person, accounting for depreciation and obsolescence.	-£250	-£301

** addition and subtraction is from the consumer expenditure figure.*

The net impact of economic adjustments on England as a whole is a fairly consistent reduction of around 5-9% of the baseline consumer expenditure from 1994 to 2006, though this varies greatly across regions. The West Midlands performance was weakest in 2006, with an overall negative adjustment of £755 per capita, although this was lower than the English average of -£844.

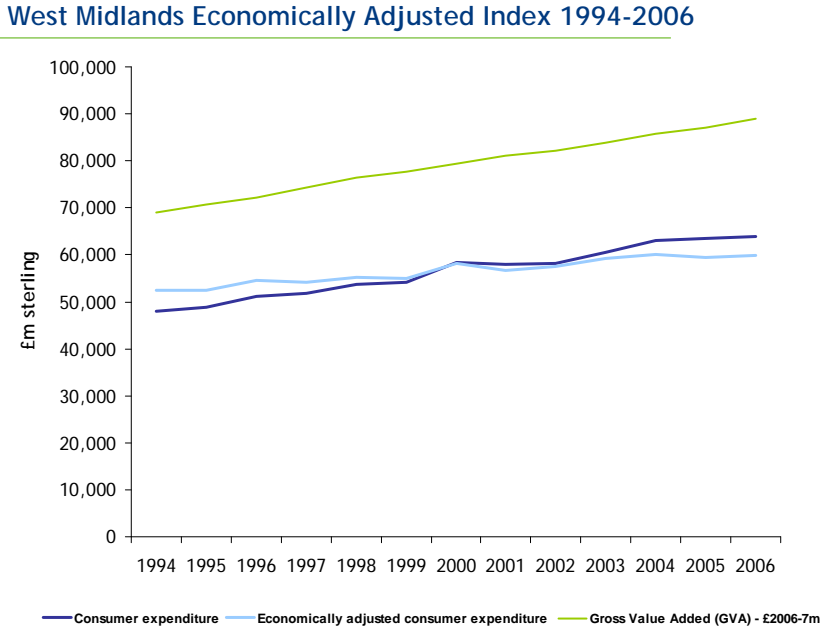
This change in position stems largely from the change in the net international position of the region; the West Midlands went from a £4.8 billion surplus in 1994 (+£914 per capita) into a deficit of £3.7 billion (-£703 per capita) in 2006. Across all regions, adjustments for net international position in 2005 range from -£3,704 per capita in the South East to plus £1,092 in the East Midlands. While the data does not allow a precise calculation of the region’s international trade position, a sustained improvement in the region’s exports and income would help improve the overall R-ISEW.

Most other regions have seen substantial net capital growth of between £464-£964 per capita (though the North East and the South West have both seen consistent falls). However the West Midlands adjustment for capital growth has remained very low, fluctuating up and down by up to £140 per year, rising from £179 per capita in 1994 up to £198 in 2006. This does not necessarily mean that there has been little growth, but that changes in the stock of capital have not been significantly different from changes in the overall labour force. This is, to a large extent, a reflection of the region’s industrial make up; stimulation of investment in capital-intensive economic sectors would increase the positive adjustment.

The adjustment for services provided by consumer durables is driven by consumer expenditure; there is little regional variation in this adjustment.

Figure 4 below shows the effect of economic adjustments to consumer spending for the West Midlands.

Figure 4



Source: ONS regional accounts, ISEW

West Midlands Regional Observatory 2008

4.2 Social Factors

The R-ISEW incorporates several adjustments to account for social aspects of the economy which are vital to sustainability, but which would normally be excluded from conventional economic accounts. Two of these adjustments are positive ones. The first accounts for the services to the economy provided by unpaid labour from households and volunteers; the second accounts for public expenditures on health and education. There is little variation across regions; however these are both large value adjustments. The West Midlands has one of the higher adjustments per capita for the value of domestic labour and volunteering, while the adjustment for public spending matches that for England as a whole.

Table 3: Calculation of Social Factors

ISEW Factor	Calculation	West Midlands 2006	England 2006
Services from domestic labour and volunteering	Value of total time spent on domestic labour and volunteering, based on Time Use Survey data, and valuing a unit of time equally across regions.	+£3,634*	+£3,561
Public expenditure on health and education	All public expenditure on health and education included (defensive health spending due to crime, car accidents and pollution subtracted elsewhere)	+£2,763	+£2,706
Costs of income inequality	Determined using the Atkinson Index for each region (calculated from the Family Resources Survey).	-£1,288	-£1,696

** addition and subtraction is from the consumer expenditure figure in Table 2 on P. 14.*

Across all regions, the overall impact of incorporating positive social benefits (the value of domestic labour and the value of public expenditures on health and education) on top of the economically adjusted expenditure measure is to increase the value of the R-ISEW. Only in London, the South East and East of England do these first social adjustments fail to mitigate the large negative economic adjustments in these regions, so the index at this point still lags behind GVA. In 2005 West Midlands remained at the bottom end of the range of results at this stage of construction.

The adjustment for income inequality, which is to some extent tied to consumer expenditure, varies substantially across regions. The adjustment for the West Midlands is relatively low in 2005 at £1,300, though this does not mitigate the low consumer expenditure forming the base for the index. It is unclear how this element can be directly influenced by regional policy, though increasing household income will have some effect on inequality.

The next stage in constructing the R-ISEW is to make deductions for some social costs: crime, divorce, commuting and accidents on the road and in the workplace. Individually these elements are not large; however, combined, they account for a deduction of £1300 for the West Midlands in 2006.

Table 4: Calculation of further Social Factors

ISEW Factor	Calculation	West Midlands 2006	England 2006
Costs of crime	Based on Home Office estimates of the social costs (including health costs) of individual crimes in different categories, and incidence rates mostly from the British Crime Survey, with additional data on vehicle crime and homicides from other Government sources. Some defensive expenditure by business is also included.	- £201*	- £216
Costs of divorce	Costs of divorce include defensive costs (identified in surveys commissioned by an insurance company) and the costs of increased risk of mortality for divorcees.	- £139	- £147
Costs of commuting and car accidents	The costs of commuting include the loss of leisure time through time spent commuting, and the direct spending costs of motoring and use of public transport. The costs of car accidents include the costs of damage to vehicles and property and the costs of ill-health and fatality. All data, including unit costs for commuting time, come from the Department for Transport.	-£525	-£564
Costs of industrial accidents	Based on estimates of the UK-wide costs of industrial accidents, and regional incidence rates from the Health and Safety Executive.	-£179	-£162

** addition and subtraction is from the consumer expenditure figure in Table 2 on P. 14.*

Continued dependence on a 'car culture' nationwide means the associated social costs from commuting have until recently tended to rise nationally. Between 1994 and 2006 the costs of commuting in England rose by 19%; the West Midlands rise was only less than this at 11%. However costs associated with car accidents have fallen across the board as road safety measures have begun to have an impact on the number and severity of road casualties. Regional measures to reduce private car use are likely to have a strong impact on this value and it is the main 'social' factor where regional policy may have a significant impact.

Crime, while a small proportion of the overall R-ISEW, can also be influenced through local and regional action. The costs of recorded crime are higher in regions with large metropolitan areas - London and the North West in particular, and lower in predominantly rural regions. The cost for the West Midlands lies in the middle of the range; however the region has seen one of the greatest falls in the cost of crime between 1994 and 2006 at 7% compared to England where the cost of crime has risen by 10% over this period.

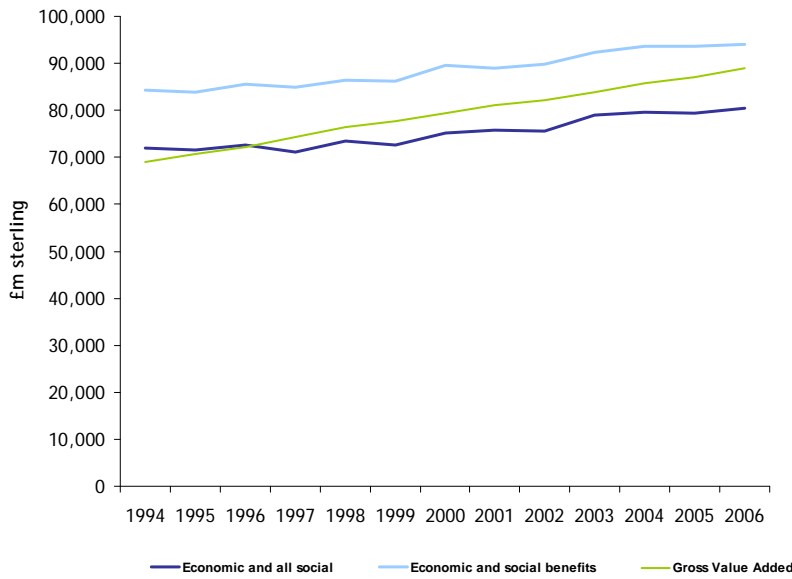
Between 1994 and 2006, most regions saw cost of divorce fall as fewer marriages dissolved. By contrast, the West Midlands saw an increase of 7%; however it still has the third lowest per capita costs of divorce of all regions. This figure only accounts for marriage breakdown rather than relationship breakdown; the slowdown in divorce may be partly accounted for by falling rates of marriage.

The cost of industrial accidents, though small, varies between regions. This is a recent addition to the R-ISEW and NEF found no clear reason for this regional disparity in the costs, based on Health and Safety Executive data, and they recommend further investigation. A falling value for this factor may reflect changes in industrial structure and practices.

After making both economic and social adjustments the index remains higher than consumer expenditure alone. However in all regions it remains below GVA, despite all the positive adjustments made, and despite not yet taking any account of environmental adjustments. Figure 5 below shows the effect of both economic and social factors on the R-ISEW compared with GVA alone.

Figure 5

West Midlands Index 1994-2006 adjusted for economic factors, social benefits and social benefits plus costs



Source: ONS regional accounts, ISEW

West Midlands Regional Observatory 2008

4.3 Environmental Factors

Environmental costs are a key determinant of the relative performance of the regions. Several different kinds of environmental costs are included in the R-ISEW, even though some of these may be in the process of becoming less important to the economy. These costs include the costs associated with 'local' environmental pollutants (air, water and noise pollution), the implicit costs in losses of agricultural land and natural habitats, the accumulated long-term costs associated with climate change, and the depletion of finite (non-renewable) resources, in particular of fossil energy resources.

Table 5: Calculation of Environmental Factors

ISEW Factor	Calculation	West Midlands 2006	England 2006
Water pollution (per person)	The cost associated with having rivers of low chemical and biological quality, as estimated by Defra. Levels of water quality for each region reported by the Environment Agency.	-£9*	-£7

Air pollution (per person)	The costs of damage to health and property of local air pollution, estimated from various academic papers. Levels of air pollution for each region gathered from the National Air Emissions Inventory.	-£389	-£404
Noise pollution (per person)	Based on three estimates of the costs of road traffic noise pollution in the UK, and regional data from the Department for Transport. Aviation noise is costed similarly, with the regional distribution of flights sourced from the Civil Aviation Authority.	-£84	-£78
Pollution abatement	Current expenditure and annuitised capital expenditure per employee on pollution abatement by sector from Defra. Labour Force Survey used to determine number of employees in each sector for each region.	-£82	-£65

** addition and subtraction is from the consumer expenditure figure in Table 2 on P. 14.*

Taken together, the national trend over time in the category of local pollution is a declining one and the pattern for the West Midlands matches this national pattern. Although noise pollution costs are on the rise nationally, the others are falling, and this category is dominated by the trends in air pollution. In 1994 the cost of air pollution in the West Midlands was £5.8 billion (£1,099 per capita). Costs have declined significantly over the last decade as a result of EU and UK legislation on sulphur and nitrogen oxides, and increasingly stringent local air quality regulations; in 2006 the per capita cost was under £400. However, this decline was less steep per capita than in many regions, or for England as a whole. While the region's air quality is less influenced than some by power production, it retains a high level of manufacturing industry and a high level of road transport. The West Midlands has the highest cost of water pollution of all regions and is one of four regions to see a slight rise in costs since 2001.

Pollution abatement costs to industry are passed on to the consumer in higher prices, and are thus a 'benefit' in consumer expenditure data. They are, however, clearly defensive costs which cannot be said to positively contribute to welfare, and are therefore deducted here.

The second-biggest component of the R-ISEW, aside from consumer expenditure, is long-term environmental damage from climate change. The methodology used by NEF is aimed at addressing the question of long-term ecological debt from a financial perspective. In summary, a simplistic model is assumed under which the full cost of each tonne of carbon produced becomes due in 2050 - treating the current accumulated debt as though it could be paid off over time through an annuitised endowment fund. This allows calculation of the amount required to offset damage in 2050, and therefore what annual payments into an 'endowment fund' would be required to ensure that sufficient funds are available then. Regular payments into this 'fund' will be sufficient to pay off the debt provided that we start making the payments today. Should we fail to pay the premiums this year, however, the time available to achieve the required sum at payout will shorten, and next year's required payments will therefore be higher.

The major sources of greenhouse gas emissions - power generation, road transport and (to a lesser extent) industry - affect regional costs in this category. Power-producing regions such as Yorkshire and the Humber and the East Midlands see very high costs (especially where coal is the main fuel). This may explain the West Midlands' low adjustment of £1,700 per capita in 2005 (compared with £980 for London, for example, or £3,100 for the East Midlands). Given the way this factor is calculated, it is therefore regional policy actions which influence production of greenhouse gases which will have most impact on the index.

Table 6: Calculation of further Environmental Factors

ISEW Factor	Calculation	West Midlands 2005	England 2005
Long-term costs of climate change	The method treats the current accumulated cost of climate change as though it is a debt which could be paid off over time through an annuitized endowment fund which matures when required in the future. The costs of climate change have been distributed to the point of emission (using data from the National Air Emissions Inventory), rather than the point of consumption - that is to say that regions producing GHGs suffer higher costs, rather than those regions consuming more energy.	-£1,884*	-£2,280

Resource depletion	Estimated as the cost of replacing fossil energy use with renewable energy, in line with the replacement cost methodology of Cobb and Cobb. National energy use data available from the former Department for Trade and Industry. Regional distribution estimated using data on sectoral GVAs, population and travel.	-£1,848	-£1,897
Loss of farmlands and natural habitats	The value of natural habitats estimated based on a willingness-to-pay model using data from the RSPB. Costs account for the accumulated loss of land since 1950. The value of farmland and costs of soil erosion are sourced from earlier studies. Rates of farmland and natural habitat loss (or gain) from the Countryside Survey and the Defra June Agricultural Census.	-£13	-£12

** addition and subtraction is from the consumer expenditure figure in Table 2 on P. 14.*

The country's heavy use of non-renewable energy makes resource depletion one of the most significant elements of the index. The costs of resource depletion across England increased from £72 billion in 1994 to £96 billion in 2006, representing approximately 10% of GVA in each year. There is relatively little variation across regions, though the reasons for the cost vary from region to region. In general, the growth in low-cost flights and regional airport use has increased energy use. The proportion of resource depletion accounted for by industrial energy use has declined between 1994 and 2005, driven largely by changes in the North West and the West Midlands, as heavy manufacturing relocates to low labour-cost sites in Eastern Europe and the Far East. The West Midlands saw a drop of about 10% in industrial energy use between 1994 and 2005.

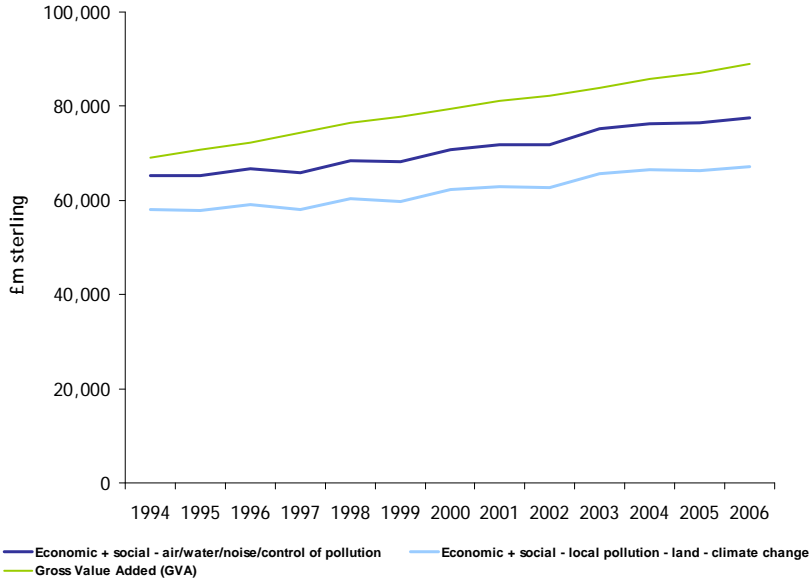
However, reductions in industrial energy use are more than offset by a much steeper rise in energy use by private sector services, the growing use of transport fuel and energy use in the domestic sector. While there is little regional variation in the value of this factor to the R-ISEW, it is an area where regional low-carbon policy can have an influence.

The loss of farmland and habitat represents a very small adjustment across all regions. This calculation looks specifically at wetlands, so that the growth of managed forest for timber does not offset the loss of more biologically diverse habitats. This may overlook urban habitat restoration projects such as the Black Country Urban Forest. In fact the index does not include any element accounting for the quality and 'liveability' of the urban environment which could impact on the score for urbanized regions.

Figure 6 below shows the effect on the R-ISEW of the environmental adjustments; it can be seen that the gap between GVA and R-ISEW has widened since 1994.

Figure 6

West Midlands Index 1994-2006 after social and economic adjustments, adjusted for local pollution, land loss and climate change



Source: ONS regional accounts, ISEW

West Midlands Regional Observatory 2008

5 Links with regional policy issues

This chapter aims to show some of the links between the R-ISEW and policy issues. These will primarily be those that are regional challenges but cannot ignore some of the more global challenges.

The WMES sets out a series of challenges that are facing the region and its policy makers. It reiterates the need for economic growth that supports improvements in well-being and quality of life and also stresses the need for economic growth to be sustainable within environmental limits.

The WMES looks at two 'levels' of challenge. The first are the challenges which can be considered to be global. These are challenges that face all regions and are not unique to the region. The second set of challenges are those that are more specific to the region and are not necessarily shared by the other English regions.

Clearly the R-ISEW also looks at policy areas that fall into the remit of the RSS and we have also looked at the linkages that can be seen between the R-ISEW and the RSS.

5.1 Global Challenges

5.1.1 Climate Change & Energy security

The R-ISEW incorporates an adjustment for long term environmental damage due to climate change, as described above. While the R-ISEW cannot be used to measure carbon decoupling as it includes other adjustments, the environmental damage element is significant, accounting for approximately a quarter of all deductions for the West Midlands (2006). Therefore progress on reducing emissions will help narrow the gap between the R-ISEW and regional GVA.

The adjustment is based on NAEI emissions source data. As the West Midlands is a net energy importer this production-based approach underestimates the region's consumption-based carbon emissions. Costs were estimated from a Defra/HM Treasury report in 2002, which studied the available literature at the time and provided a range of defensible values for the social cost of carbon. The recent Stern Review of climate change economics may well lead to a re-evaluation of these costs when the R-ISEW methodology is next revised.

5.1.2 Continued globalisation

Whilst the R-ISEW doesn't have a specific globalisation focus there are components that are influenced by continued globalisation. In particular within the economic factors the region's net international position is calculated and is most likely to be influenced by globalisation trends. For a nation, this is the balance of payments, adding exports and income, subtracting imports, and adjusting for current account transfers. Regional estimates are determined using a combination of regional trade data, consumer expenditure on services and GVA, and are calculated on a three year rolling average to iron out often sharp yearly fluctuations.

To drive this in a positive direction regionally, the balance between imports and exports would need to adjust in the region's favour.

5.1.3 Demographic change

The impact of demographic change is not directly measured by the R-ISEW. However a number of the components are likely to be affected in the future by demographic change. The projections for the region show an ageing population which has potential impacts on the expenditure on health for example.

5.1.4 The march of technology

In respect of the R-ISEW, policies around 'the march of technology' have a slightly more abstract connection to the R-ISEW. Theoretically technology advances will impact on the R-ISEW but this is likely to be across a number of the components rather than having direct influence on specific components.

5.2 Regional Challenges

5.2.1 Skills, Enterprise & Innovation

These three regional challenges are all connected to the R-ISEW but aren't directly measured. The skill levels of the workforce and the levels of enterprise and innovation impact on factors with the economic and social sections of the R-ISEW. Indirectly these three challenges connect to:

- Consumer expenditure;
- Net capital growth;
- Net international position;
- Costs of income inequality.

Innovation in particular has a broader potential to impact on the R-ISEW with drivers for innovation coming from the environment aspect as well as the economic side.

5.2.2 Transport

The R-ISEW includes several adjustments which can be linked to transport policy. These are:

- Costs of greenhouse gases, which include transport emissions, as discussed above
- Depletion of non-renewable resources, which includes estimates of oil usage based on population and travel data
- Costs of air pollution
- Costs of commuting
- Costs of car accidents
- Costs of noise pollution, from road traffic and aviation

The last four of these account for a total per capita cost of £1,200 in 2006 against consumer expenditure of £11,900 per capita and a total R-ISEW of £10,700. When the costs of greenhouse gases (£1700) and resource depletion (£1850) are also subtracted, we see that costs wholly or partly attributable to transport account for 70% of total deductions (in 2005, total deductions were £6700). This is higher than the proportion for England as a whole, which was 67% in 2005.

The adjustment for loss of farmland and habitat could be affected by new road-building schemes; however the effect of this is likely to be minimal given the very low value of this element.

5.2.3 Economic Inclusion

The R-ISEW includes an adjustment for income inequality which is calculated using the Atkinson Index for each region (calculated from the Family Resources Survey). This was £1,288 for the West Midlands in 2006, compared to £1,696 for England; the cost of income inequality for the region has grown by 27% since 1994 compared with 33% for England. If household incomes (adjusted for various social factors) were to rise, this would help reduce this deduction and thus improve the R-ISEW value. However, overall the R-ISEW tells us very little about economic or social inclusion.

5.3 The Regional Spatial Strategy

The RSS has a strong, direct linkage to the R-ISEW particularly on the environment components. RSS policies on housing, waste, water, transport; biodiversity and, more generally, planning guidance mean that most of the environmental components are influenced in some way by the RSS.

Currently the environmental components of the R-ISEW are negatives - meaning that they reduce the R-ISEW. Consequently good regional performance against these components limits the reductions. Currently most of the environmental impacts are similar from region to region with the exception of the climate change component. This currently penalises the regions that are power producers as it allocates emissions at the source rather than through consumption. Consequently, as the West Midlands is a net importer of energy, this component is better than the England average. However this means that it is difficult for the West Midlands to have a large influence on this component as the most effective policy interventions will be those that influence energy production.

6 Regional-level policy levers to influence the R-ISEW.

Clearly, with such a broad range of composite indicators making up the index, a diverse range of regional policies can have an impact on performance. The previous chapter considers the links with regional policies on carbon, transport and inclusion.

The move to a low carbon economy, being driven by the West Midlands Economic Strategy should have a positive impact on the index, though this will be mitigated slightly by the fact that current emissions are estimated on a production basis and the region is a net importer of energy. However reduction of emissions and the positive impact this can have on the future climate change impact is important. Also in this area the drive towards more energy efficient housing in the Regional Spatial Strategy is important though the increase in number of new houses will not help.

Transport will continue to impact negatively in the region with its position at the centre of the country's transport network. Improvements in public transport and the drive to get more people to use it will help. The importance of the cost of commuting is reinforced by other work produced by WMRO⁴ which shows that a 15% reduction in traffic at peak times leads to a 40% reduction in journey times. Any improvement in transport has increased importance in terms of the index, as the West Midlands fares poorly on the transport section of the index.

The inclusion element is driven by household incomes and as such is difficult to directly influence at policy level. The move to higher skilled, higher value jobs will help and will any moves to reduce worklessness.

⁴ Transport and the Economy, WMRO. Oct 2008

7 Summarising the regional picture

In this table we have listed the components in order of their **positive** (or least negative) impact on the West Midlands R-ISEW.

We have then taken a fairly simplistic view of the potential for regional policies to have an impact on the particular component. We have categorised the potential influence as either high, medium or low impact.

Many of the components would be most significantly affected by national policy but there is scope for regional influence.

Table 7: Potential regional impact on the R-ISEW

R-ISEW Component	Impact on the West Midlands performance (£)	Level of potential influence by regional policy
Services from domestic labour and volunteering	+ £3,634	Low
Public expenditure on health and education	+ £2,763	Low
Net capital growth	+ £198	Medium
Water pollution (per person)	- £9	High
Loss of farmlands and natural habitats	- £13	High
Pollution abatement	- £82	Medium
Noise pollution (per person)	- £83	Medium
Costs of divorce	- £139	Low
Costs of industrial accidents	- £179	Low

Costs of crime	- £201	High
Adjustment for consumer durables	- £250	Low
Air pollution (per person)	- £389	Medium
Costs of commuting and car accidents	- £525	Medium
Net international position	- £703	Medium
Costs of income inequality	- £1,288	Medium
Resource depletion	- £1,848	Medium
Long-term costs of climate change	- £1,884	Medium

7.1 Which policy levers will have the greatest impact?

The previous table (Table 7) addresses the potential for regional level policy making to influence the individual components of the R-ISEW. Looking at this from a reverse perspective we will now consider which regional policy levers could have the greatest effect on improving the region's R-ISEW.

Due to the way the R-ISEW is developed we can't take the analysis to the level of saying "a 5% reduction in CO₂ emissions will give an x% increase to the R-ISEW". However we can assess the policy areas most likely to make a significant impact.

The primary focus for this would be the components that have a negative effect on the R-ISEW - those that are a subtraction from the total.

The region has scope to have an effect on the three components that have the greatest negative impact on the R-ISEW. These components are:

- Long-term costs of climate change;
- Resource depletion;
- Costs of income inequality.

There are some very obvious links between the three components and the West Midlands Economic Strategy. Clear linkages between the drive for a low carbon economy exist with the first two components. The West Midlands Economic Strategy states that:

“More effective management and use of our infrastructure. Including both transport and ICT, as well as more efficient use of resources including our natural environment, water and energy, is therefore key to ensuring that the region remains a competitive place to visit, live, work and do business.”

Existing policies within the WMES and the Regional Spatial Strategy have the aim of promoting the development of renewable energy sources. This has a direct impact on the resource depletion component which is essentially the estimated cost of replacing fossil energy use with renewable energy. Positive moves to increase the development and the use of renewables will impact on this component.

Income equality is a component that is challenging to tackle with regional policy interventions but the national Public Service Agreement (PSA) 17 is set out to *“Tackle poverty and promote greater independence and well-being in later life.”* The interventions required to make an impact on this help to drive up the incomes of some of those people living on low incomes thus helping reduce the inequalities.

Also the driver within the WMES to tackle the 20% of the region’s output gap that comes from worklessness will also help increase the incomes at the lower end of the scale and reduce the inequalities.

Full document information

Title	Regional Index of Sustainable Economic Wellbeing (R-ISEW)
Date created	2009-02-26
Type	Report
Description	An explanation of the R-ISEW and what it means for the West Midlands region
Creator	John Walker, WMRO
Publisher	West Midlands Regional Observatory Level 3, Millennium Point Curzon Street Birmingham B4 7XG Telephone: 0121 202 3250 Fax: 0121 202 3240 Email: enquiries@wmro.org Website: www.wmro.org
Contributor	Naomi Winchurch, WMRO
Rights	West Midlands Regional Observatory 2009
Document contact	John Walker West Midlands Regional Observatory Tel: 0121 202 3246 Email: john.walker@wmro.org
Location	West Midlands Regional Observatory
Coverage, Time period	1994-2008
Coverage, Geographical	West Midlands
Format	Text/MS Word 2003
Subject category	Sustainable Development
Subject keywords	Sustainable development; sustainable growth; economic growth
Date available	2009-02-26
Date valid	2009-02-26
Cost	Free
Access restrictions	Read only
Language	English
Identifier URL	ISEW-Overview_V1.1_Report_JW.doc
Status	Version 2.0 final signed off version



West Midlands Regional Observatory

Level 3
Millennium Point
Curzon Street
Birmingham B4 7XG

Telephone: 0121 202 3250
Fax: 0121 202 3240
email: enquiries@wmro.org

www.wmro.org