

Indicators for a Good Food Nation

A project for the Scottish Food Commission

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Introduction & background

In 2014 the Scottish Government published a document stating its intention for Scotland to become a 'Good Food Nation' and describing a vision of how that might look.¹ As part of this process a Scottish Food Commission (SFC) was established, comprised of individuals with expertise in relevant fields. The SFC has articulated this vision as below.

Vision of Scotland as a Good Food Nation

Our aspiration is that Scotland is a Good Food Nation, a country where people from every walk of life take pride and pleasure in, and benefit from, the food they buy, serve, and eat day by day.

This will require a step change and mean that:

- It is the norm for Scots to take a keen interest in their food, knowing what constitutes good food, valuing it and seeking it out whenever they can.
- People who serve and sell food – from schools to hospitals, retailers, cafes and restaurants – are committed to serving and selling good food.
- Everyone in Scotland has ready access to the healthy, nutritious food they need.
- Dietary-related diseases are in decline, as is the environmental impact of our food consumption.
- Scottish producers ensure that what they produce is increasingly healthy and environmentally sound.
- Food companies are a thriving feature of the economy and places where people want to work.
- Other countries look to Scotland to learn how to become a Good Food Nation

Part of the SFC's mandate includes '[r]efining the proposed vision and agreeing on a small numbers of high level indicators of success (building on existing indicators)'.²

This paper sets out the first step towards realising that objective and describes the analytical framework and methodology adopted for selecting indicators, as well as a preliminary proposal for a suite of indicators that could be chosen.

The chosen indicators should accompany the vision of a Good Food Nation and are not intended to be held solely by the SFC.

Methodology

To develop a set of Good Food Nation indicators we employed two main methods.

Discussion among SFC members: There were three opportunities for members of the SFC to discuss and contribute to the nature and content of the indicator framework:

- the third meeting of the SFC on 3rd September 2015 at Coltness High School, Wishaw where members agreed on the criteria to be applied in selecting indicators and put forward proposals for potential indicators;
- an online poll for SFC members to agree on the objectives for which indicators are required;
- and a workshop on 10th November 2015 between two SFC members and Scottish Government (SG) and NEF analysts at Saughton House, Edinburgh where possible indicators were discussed and a preliminary set agreed upon. All key decisions were taken and/or approved by the two SFC members present.

Desk work by SG and NEF analysts: Based on decisions taken by SFC members, analysts from the Scottish Government and NEF assessed availability and quality of data for indicators and made recommendations to the SFC at the workshop.

An analytical framework

The food system is a highly complex set of interactions between physical, social and environmental sub-systems. Making sense of this bewildering yet vitally important area of our lives requires us to distil the most important aspects into a simplified analytical framework.

In previous work, NEF has highlighted the two core components of such a framework:

- ‘The system has some set of purposes or objectives that we, as a society, value inherently (i.e., not as a means to some other objective). For example: happiness is an ultimate objective; we see it as something desirable independently of any other effects it may have (such as positive health impacts). Financial profit is not an ultimate objective; we value it because it is a surplus of resources that we can use to pursue other objectives. Ideally, our identified set of objectives should cover everything of relevance, nothing more, nothing less, and should not repeat itself.³
- Since those objectives cannot be easily and directly observed in all cases, we must employ observable indicators of those objectives. There are quantitative and qualitative measures, neither of which is more important. Furthermore, each of our chosen

indicators will stand alone – aggregation of indicators into one ‘score’ is not considered desirable. This is to preserve the nuance of different incommensurable qualities.’

It is necessary therefore, to be explicit about both our objectives and our chosen

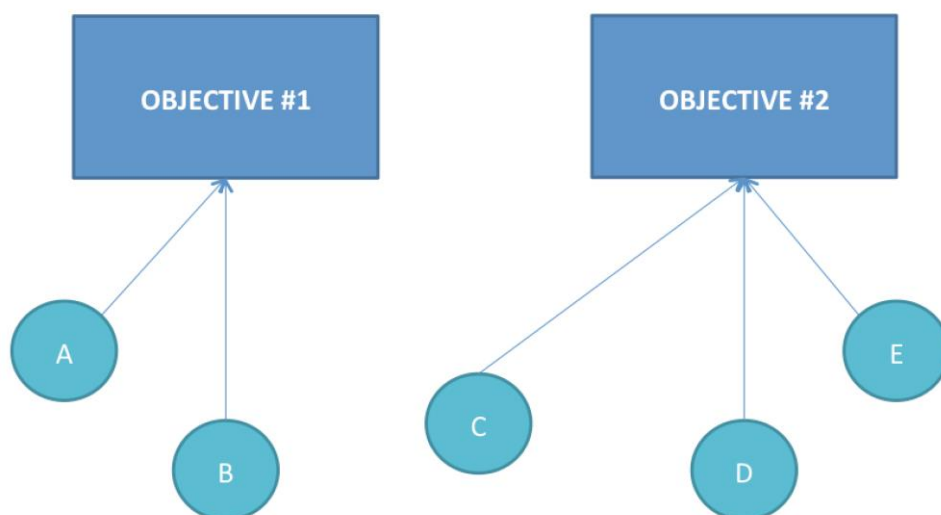


Figure 1. Example of objectives and indicators (A - D)

indicators.

Finally, given the profusion of potential food system indicators it is useful to clearly define the intended audience and also define criteria according to which different indicators can be evaluated. This helps to narrow the choice down to the most effective indicators for the objectives in hand.

There are, therefore, four distinct concepts that need to be defined in this process:

1. **Objectives** – the ultimate goals we want to achieve
2. **Audience** – the people or organisations we are communicating to
3. **Criteria** for choosing indicators – principles for determining the most effective indicators
4. **Indicators** – the measures that provide an indication on whether we are achieving our objectives

Simplifying objectives

The ultimate goals that we want to achieve are described in some detail in the Scottish Government’s vision of a Good Food Nation (see page 3). During a session at the third meeting of the SFC on 3rd September 2015 and a follow-up online poll, Commission members distilled this vision down to four key objectives that reflect the Good Food Nation vision.⁴ These were:

- Health
- Social Justice
- Sustainability
- Prosperity

These were thought to broadly cover all areas of interest articulated by the vision and met the criteria of being inherently valuable, rather than solely means to some other end.

Specifying the audience

At the third meeting of the SFC on 3rd September 2015, Commission members discussed the intended audience for the vision and its associated indicators. This encompassed a discussion of the purpose of the commission itself. With a very broad-ranging remit, including advocacy, championing local action and informing national debates,² Commission members felt that the indicators had to speak to all groups of society – government, private sector and the general public.

However, further discussion at the workshop on 10th November 2015 led to agreement that the most crucial audience was the general public. The high-level nature of the set of indicators make them most useful as a communication tool for informing public debates and engaging people in the long-term vision of a Good Food Nation. Moreover, it was considered indicators that are meaningful to this audience should naturally be meaningful to government and business as well.

Identifying indicator criteria

There is a plethora of potential indicators in the food system, across economic, environmental and social realms. In order to focus our attention on the most promising indicators we selected a small number of criteria to guide our choices. A number of potential criteria were considered, including:

- **Valid** – the indicator is sourced from a reputable source and uses accepted best-practice methodologies
- **Timely** – the information necessary for the indicator is available at frequent intervals
- **Comparable** – meaningful comparisons can be made either over time or between countries based on the indicator
- **Far-reaching** – the indicator reflects a wide range of impacts and not just outcomes that are limited in scope
- **Simple/easy to communicate** – the indicator is understandable to a lay audience without significant explanation required

- **Relevant** – the indicator relates to the actions of the intended audience, and not to something entirely outside of their control

During the third meeting of the SFC on 3rd September 2015, Commission members suggested that the most important criteria for their purposes were that the indicators should be: far-reaching, easy to communicate and relevant. Scottish Government analysts also considered validity to be an essential criterion. Inclusion of indicators in the final set also relies on data being available – indicators that are considered promising but lacking in data availability are assigned to an indicator ‘wish list’.

Further discussion at the workshop on 10th November 2015 concluded that this list should be further distilled to:

- Valid
- Simple/easy to communicate
- Far-reaching

The criterion of ‘relevant’ was dropped due to lack of agreement on how it should be defined and applied to indicators.

Selecting indicators

With a clear analytical framework in place, the final task is to populate this with indicators that reflect the stated objectives and meet our chosen criteria.

An initial list of possible indicators was generated by Commission members at the third meeting of the SFC on 3rd September 2015 and was supplemented by Scottish Government and NEF analysts. The workshop on 10th November 2015 was used to go through this list and assess their potential against the criteria above. Attendees at that workshop also agreed that the chosen indicators should consist of two categories:

- a **top-tier category** of 1-2 indicators for each objective – these will be the main, high-level indicators
- a **second-tier category** – these are indicators that are also considered relevant and meet the criteria but are only to be communicated when more detail or nuance is considered necessary

The next section provides details of each indicator considered and reasons for accepting or rejecting.

Assessment of indicator options

SOCIAL JUSTICE

Household food insecurity

SFC members proposed an indicator that measures experienced levels of food insecurity. Some such measures have been developed, such as the Food Insecurity Experience Scale,⁵ but there is no systematic and periodic collection of this data for Scotland.

Decision: do not include due to lack of availability, but include in the indicator wish list

Proportion of expenditure allocated to food by lower income deciles

Defra's Family Food Survey provides data on household expenditures by product category and by income groups. However, this is UK level data and the Scottish sub-sample is not large enough to support annual reporting. Three years of data would be required to provide a statistically significant sample – therefore, this indicator would only be available every three years.

This indicator may be considered **far-reaching**, since it affects the ability of a large section of society to purchase food of high health and environmental standards. It is **simple** to understand but not clearly simple in its interpretation. For example, the indicator value is actually highest for the second-lowest income group, rather than the lowest. And the particular measure of income adopted (e.g. pre-tax versus post-tax, before versus after housing costs, etc.) may affect these results.

Furthermore, a continually decreasing value of this indicator is probably not desirable – at some point making food cheaper comes with other environmental and social costs. It could be more meaningful to think of a certain threshold that is considered an unacceptable level of expenditure.

Decision: do not include, due to data limitations

Number of emergency food aid provisions

SFC members proposed using the number of food banks as an indicator; however, robust data is not available for this and it is more meaningful to monitor the actual number of emergency food packages given out.

Many emergency food providers do not record information on how many distributions are made or how many mouths that food eventually feeds. However, the Trussell Trust, a major provider of emergency food aid, does undertake monitoring and a previous Scottish Government report considered this data to be 'a good indicator of general provision and demand trends and reasons for demand experienced by other

providers of food parcels.⁶ The data records the number of people in a year given three days emergency food support; however, some people may receive more than one such provision per year so double counting of individuals is likely.

This indicator is considered **simple** to understand, but only somewhat **far-reaching** since it provides a picture of only the very extreme ends of social injustice in the food system.

Decision: include as a second-tier indicator

Consumption of key foods and drinks by lower income deciles

The Living Costs and Food Survey provides information on household expenditure on food in and out of the home, from which consumption of food categories can be inferred. Data is also available from Food Standards Scotland (FSS) on progress towards Scottish Dietary Goals by Scottish Index of Multiple Deprivation, which could be an alternative measure.

For the sake of providing a concise set of indicators, it would be advantageous to select a single representative statistic. The percentage of food energy from saturated fat and non-milk extrinsic sugars for lower income groups could be a suitable choice. This indicator would not be particularly **simple** to understand and is only somewhat **far-reaching** (since it focuses on only one dimension of health).

Decision: further deliberation required – include in the indicator wish list

Consumer confidence in food safety

The new FSS Attitudes Survey, which is in development, will provide data on consumer confidence.

This indicator is considered **simple** but not **far-reaching**, since we know that concern for food safety fluctuates depending on ongoing events (e.g. the horsemeat scandal) and does not necessarily closely reflect the actual underlying risk.¹

Decision: do not include, due to failing far-reaching criterion

Household access to food stores

This indicator measures the availability of food retailers in a local area, potentially also taking into account whether healthy food in particular is available.

The available data on this kind of measure comes from one-off studies⁷ and is not monitored periodically. Overall, access to food retailers is high, so there may be limited potential for improvement on this indicator.

¹ On the other hand it may be relevant in its own right as an indicator of experienced wellbeing, assuming that concern for safety affects one's enjoyment of food irrespective of the actual level of risk.

This indicator is not immediately **simple** to communicate and is not particularly **far-reaching**, since access to a food store is not clearly connected to high health or environmental standards or affordability.

Decision: do not include, due to failing criteria

Proportion of jobs paid the living wage in the food and drink sector

Rather than looking at the levels of food poverty in the population, this indicator approaches the issue from the perspective of the food and drink sector's contribution to low pay and poverty.

Scottish Government data allows this to be calculated so this indicator may be available annually, subject to sufficient resources.

This indicator is **simple** to understand and relatively **far-reaching**, since employment in the food and drink sector (including food and drink manufacturing, sea fishing, aquaculture and agriculture) is a significant proportion of total employment. This doesn't include retail and catering, which is likely to underestimate the true extent of low pay in the food sector.

With increases in the minimum wage planned by the UK Government (termed a 'National Living Wage'²), there may be a one-off improvement in levels of low pay when that policy is implemented.

Decision: include as top-tier indicator, subject to data availability

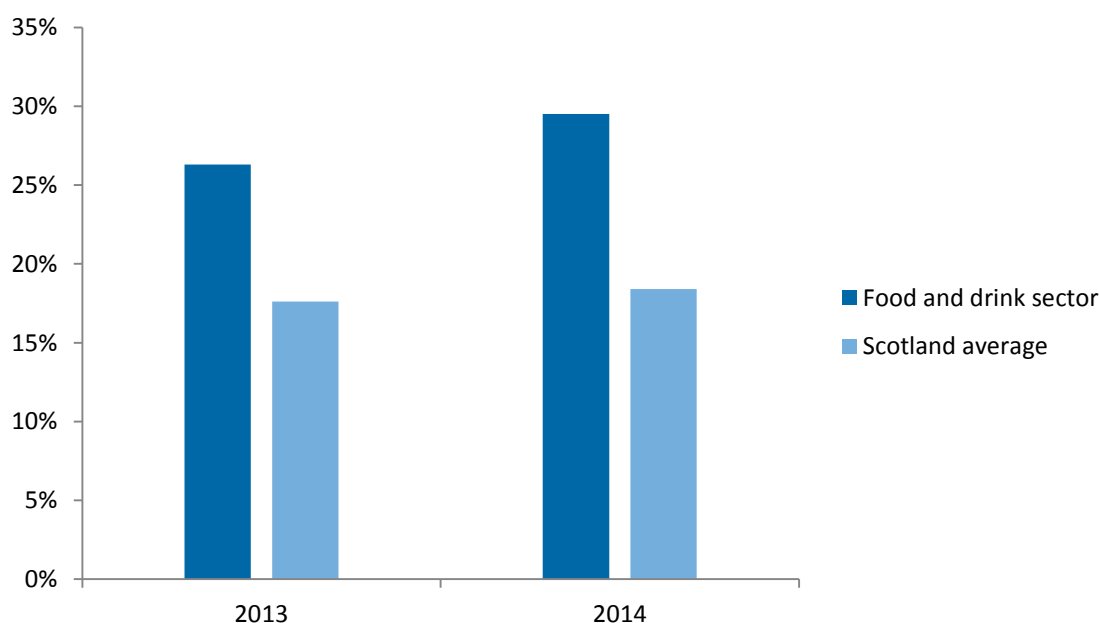


Figure 2. Proportion of employees earning less than the living wage. Source: Scottish Government

² Note that the new 'National Living Wage' is not calculated based on the cost of living, which is typically how a living wage is defined.

HEALTH

Incidence of obesity

The Scottish Government collects annual data on incidence of overweight and obesity (measured by Body Mass Index) through the Scottish Health Survey.

This is considered to be both **simple** and **far-reaching**, although it is suggested that measuring the proportion of the population considered a healthy weight would be more far-reaching still, since it encompasses underweight as well.

Decision: do not include, due to better alternative – see below

Incidence of malnourishment and undernourishment

As with the obesity indicator, it is suggested that this information could be encapsulated in a measure of the proportion of the population considered a healthy weight.

Decision: do not include, due to better alternative – see below

Proportion of the population considered a healthy weight

This indicator would comprise the total proportion of Scottish people not considered either overweight or underweight according to a Body Mass Index measure³ and is available through data collected for the Scottish Health Survey.

It is considered **simple** to understand and **far-reaching**, due to the wide-ranging health consequences correlated with and caused by unhealthy weights.

Decision: include as a top-tier indicator

Incidence of type II diabetes

Data on the incidence of type II diabetes is available annually from the Scottish Diabetes Survey.⁸

This indicator is considered somewhat **simple** (though there's a question around the extent to which the food-related causes and consequences of diabetes is well-known) and somewhat **far-reaching**, since it has significant health implications and is directly related to diet.

Decision: include as a second-tier indicator

Incidence of tooth decay

³ BMI has a number of limitations as a general measure of good health. People of different body types, ethnicity or age may have very different levels of health despite having a similar BMI.

The Scottish Government has adopted ‘the percentage of Primary 1 children with no obvious decay experience’ as a National Indicator,⁹ based on data from the National Dental Inspection Program.

Significant progress has already been made against this indicator and it’s unclear how much further improvement is likely.

This indicator is **simple** but not particularly **far-reaching**, since it concerns a relatively limited aspect of health.

Decision: include as a second-tier indicator

Proportion of people consuming recommended five portions of fruit and vegetables a day

This data is available from the Scottish Health Survey on an annual basis.

This indicator is somewhat simple and somewhat far-reaching, since consumption of fruit and vegetables can have wide-ranging positive health impacts. However, Scottish Dietary Goals (see below) include consumption of fruit and vegetables, so it may not be necessary to include this indicator in addition.

Decision: do not include, due to overlap with other indicator

Index of fruit and vegetable prices relative to other foods

The best way to measure this concept is unclear. For example, an indicator based on the cost of foods per unit of energy (£/kcal) can be ambiguous – the cost of vegetables per calorie is high because they are low in calories, but this is precisely one of their major health benefits. For this reason the indicator is not **simple**, though it may be considered somewhat **far-reaching**.

Decision: do not include, due to failing simple far-reaching criterion

Proportion of young people having a shared meal more than four times a week

The Scottish Health Survey provides data on the number of shared meals per week for children and adults.

This indicator doesn’t necessarily correlate highly with physical health outcomes (shared meals need not be healthy); however, shared meals may reflect higher mental and emotional wellbeing, and have been linked to other positive outcomes among young people.^{10,11} This indicator is **simple** and somewhat **far-reaching**, since it potentially has a range of impacts.

Decision: include as a second-tier indicator

Scottish Dietary Goals

The Revised Dietary Goals for Scotland¹² comprise a set of targets for changes in consumption of key dietary elements, including fruits and vegetables, oily fish, red meat, fat, sugar, salt and fibre, as well as overall calorie intake. The Living Costs and Food Survey provides purchase data, from which consumption levels are estimated. Food Standards Scotland record and report on progress towards Scottish Dietary Goals.^{13–15}

This set of indicators is not particularly **simple** since it is comprised of many different elements; however, it is considered **far-reaching** since it encompasses a range of different contributors to health outcomes.

Decision: include as second tier indicator

SUSTAINABILITY

Food and packaging waste

There is currently no systematic and timely data collected on food and packaging waste throughout the food system, other than occasional one-off surveys. SG is working towards collecting data around food and packaging waste and developing a food waste reduction target for Scotland. To that end, SG is working in conjunction with Zero Waste Scotland and SEPA who collect and publish waste data for Scotland.

Information on food waste will become clearer over the next year or so as legal requirements for separate collection from most households and businesses apply from January. But there is no indication as to when the data will be available and ready to be reported on.

In theory this indicator would be simple and somewhat far-reaching.

Decision: do not include due to current lack of availability, but include in the indicator wish list

Levels of home or allotment growing

Local authorities collect data on allotments.

This indicator is considered relatively **simple**, but not particularly **far-reaching** since allotment growing is currently quite limited in extent.

Decision: do not include due to failing far-reaching criterion

Levels of knowledge about the provenance of food consumed

There are occasional one-off surveys that ask questions ascertaining whether people know how or where their food is produced, but no systematic annual surveys.

This indicator was considered to be of interest as it reflects not the actual environmental or health outcomes at any particular time, but rather the degree to which environmental or health standards are embedded in societal expectations. This would reflect longer-term evolutions in food culture.

Decision: do not include due to lack of availability, but include in the indicator wish list

Net GHGs from agricultural and related land use

The Scottish Government regularly publishes data on GHG emissions from agriculture. This includes positive and negative emissions (i.e. sources and sinks of greenhouse gases). These can be influenced by the extent and manner of agricultural management.

This indicator is considered somewhat **simple** and somewhat **far-reaching**, since contributions to climate change have very wide-ranging impacts. However, these emissions relate to pre-farm gate practices and do not cover the rest of the food sector. On the other hand, agriculture is the part of the supply chain most responsible for GHG emissions (around 40%).¹⁶

This indicator could be improved by supplementing it with GHG emissions estimates for other stages of the food supply chain.

Decision: include as top-tier indicator and, subject to capacity, add emissions estimates from other stages of the supply chain

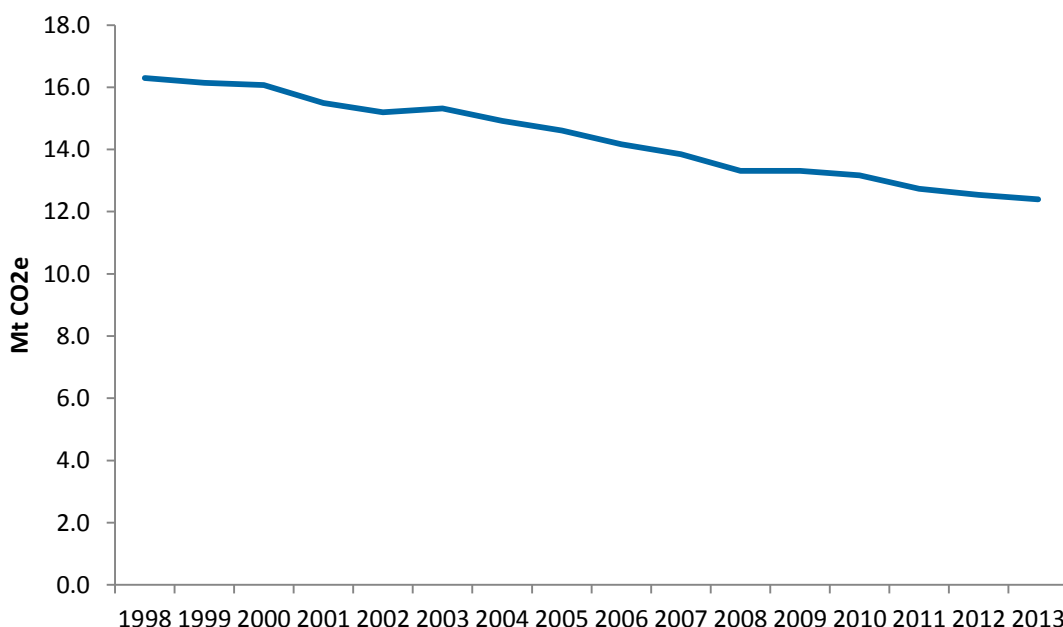


Figure 3. Greenhouse gas emissions in Scotland from agriculture and related land use. Source: Scottish Government

High nature value farming and forestry

A set of indicators covering high nature value farming and forestry (HNVFF) were developed for the Scotland Rural Development Programme 2007-2013. The headline indicator is the proportion of agricultural and forestry land in Scotland that can be classified under the high nature value definition (around 40%). High nature value land may be one of three types:

- 'Type 1: Land with a high proportion of semi-natural vegetation.
- Type 2: Land with a mosaic of low intensity agriculture and natural and structural elements (field margins, hedgerows, stone walls, patches of woodland or scrub, small rivers etc).
- Type 3: Land supporting rare species or a high proportion of European or world populations.'¹⁷

Due to the complex definition of high nature value, this indicator is not considered particularly **simple**; however, it is considered somewhat **far-reaching** since it covers the environmental management of all land, including biodiversity considerations that are often difficult to otherwise capture.

Decision: include as second-tier indicator

Natural Capital Index

The Natural Capital Index (NCI) for Scotland comprises aggregate measures of ecosystem health for a range of broad habitat types including cropland and grassland. It combines a number of indicators that reflect ecosystem quality into a single measure for each habitat type. The measure is calculated by Scottish Natural Heritage.¹⁸

Due to the complex methodology, this indicator is not considered **simple** to understand; however, it is considered **far-reaching** since it encompasses a range of ecological outcomes.

Decision: include cropland and grassland NCI as second-tier indicators

Proportion of fruit and vegetables failing aesthetic standards

Many fruits and vegetables are wasted because they do not meet strict aesthetic standards typically imposed by supermarkets. This is thought to be a significant source of waste and a, therefore, a significant environmental impact.¹⁹ It is also indicative of an increasingly engrained attitude towards fresh produce that expects uniform, unblemished products.

No robust and regular data source currently exists for this indicator.

Decision: do not include due to lack of availability, but include in the indicator wish list

PROSPERITY

Turnover of the food and drink sector

Data is collected on turnover in the food & drink Scottish growth sector (including agriculture & fisheries) through the Scottish Annual Business Survey. This measure is the total annual income (i.e. not subtracting costs) from those sectors. As such, it does not necessarily reflect profitability, but may indicate changes in the aggregate economic size of the sector.

This indicator is considered not particularly **simple** as the concept may not be well understood outside of industry and not particularly **far-reaching** as it is a narrow definition of economic prosperity (i.e. excluding costs).

Decision: do not include due to failing criteria

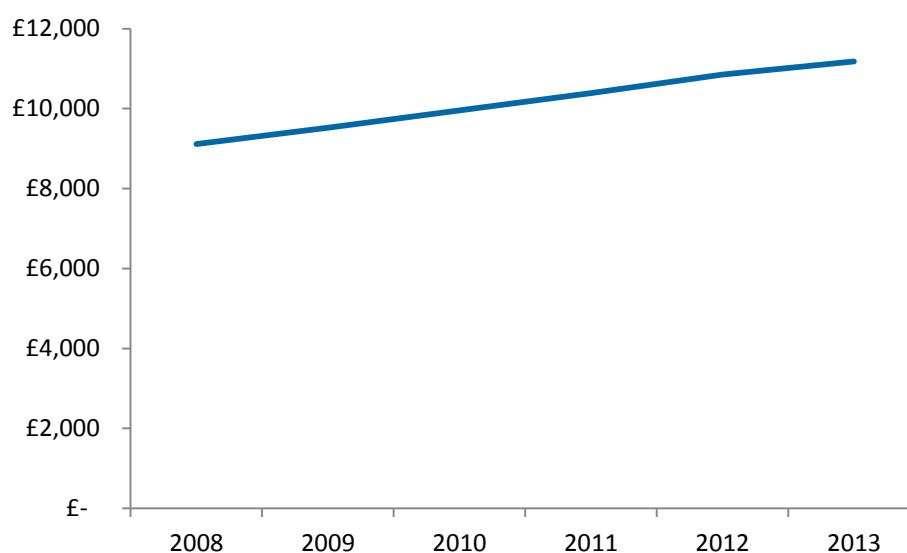


Figure 4. Turnover of Scottish food and drink sector (£million). Source: Scottish Annual Business Survey

Profitability of Good Food enterprises

This indicator would illustrate whether businesses that fit with the Good Food Nation vision in environmental and social terms are also economically prosperous. There are two problems with this measure: first, obtaining good quality and comprehensive data on profits can be difficult, especially for smaller firms; second, the measure would also require comprehensive assessment of businesses against the vision of a Good Food Nation. These obstacles make this indicator unfeasible at present.

Decision: do not include due to lack of availability

Exports of food and drink products

The annual Global Connection Survey provides data on Scottish food and drink manufactured exports.²⁰ This measure provides a picture of changes in the extent to which domestically-based producers are serving international customers (but also reflects simply growth of the sector).

This measure is considered simple but only somewhat far-reaching as the value of exports does not necessarily reflect the general prosperity of Scottish people or the prosperity of non-exporting food sectors such as catering and retail. On the other hand exporting sectors tend to be important destinations for high-skill workers.

Decision: include as a second-tier indicator

Gross value added of food and drink sector

Data is collected on gross value added (GVA) in the food & drink Scottish growth sector (including agriculture & fisheries) through the Scottish Annual Business Survey. This indicator measures the value of the sector's outputs less the value of the sector's inputs (not including any taxes or subsidies). As such it encompasses more economic information than simple turnover (as the graphs of turnover and GVA illustrate, these indicators need not necessarily move in a correlated way).

This indicator is not considered **simple** as the concept of GVA is not well-known or well-understood. It is somewhat **far-reaching** as it is a more relevant measure of economic prosperity, though it still excludes catering and retail.

Decision: do not include due to failing simple criterion

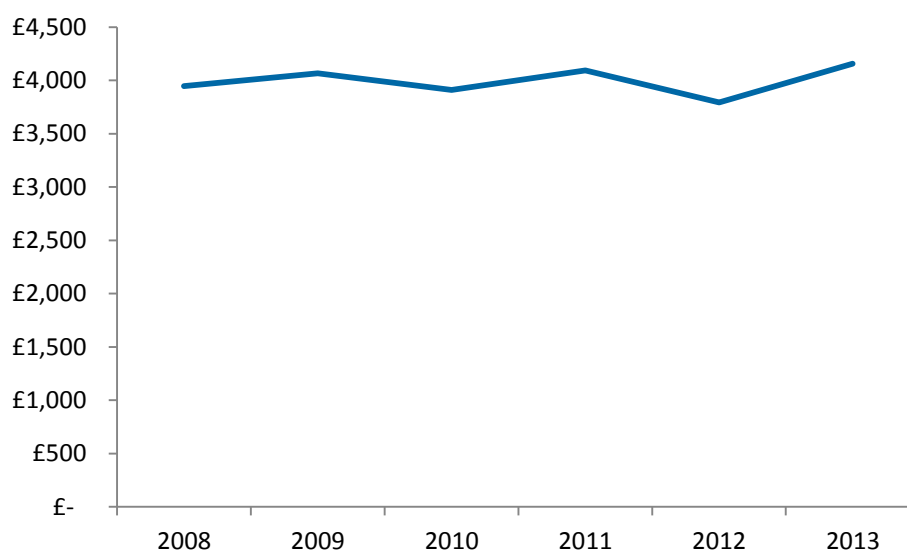


Figure 5. Gross value added at basic prices (£million) in Scottish food and drink sector. Source: Scottish Annual Business Survey

Productivity of food and drink sector

Productivity refers to the ratio of outputs to a given input – for example, the monetary value of production per unit of labour. One such measure is gross value added per employee.

As with GVA, this indicator is not considered **simple** as the concept and definition of productivity is not likely to be well-known. It is somewhat **far-reaching** as it reflects to some extent the per capita economic prosperity of the food and drink industry. However, again it excludes retail and catering and the relationship between worker productivity and wages, for example, is not necessarily strong.

Decision: do not include due to failing simple criterion

Level of skills in food and drink sector

The UKCES Employer Skills Survey for Scotland provides detailed data on many aspects of skills levels across sectors.²¹ For example, a metric such as incidence of skills gaps would indicate the extent to which both Scottish food and drink enterprises and the individual employees of those businesses are reaching their economic potential.

The Annual Population Survey²² also provides data on the food and drink sector's labour market. For example, the 2013/14 survey show that:

- People working in the Food and Drink growth sector were about half as likely to hold a qualification at degree level or higher (SVQ level 5 and above) compared to all sectors (16% compared to 30% for all sectors).
- In contrast, those working in the Food and Drink growth sector are more likely to have no qualifications (17%) or GCSE level qualifications (21%) compared to all sectors (6% and 16% respectively).

Decision: subject to agreement on the most appropriate metric this should be included as a top-tier indicator

Proposed indicators for a Good Food Nation

Based on these decisions regarding whether suggested indicators are available, valid, simple and far-reaching, Figure 6 overleaf illustrates the full framework of objectives, top-tier headline indicators and supplementary second-tier indicators.

This is a first proposal for an initial framework, and should not be considered a final result. The proposal would benefit from further deliberation by SFC members and analysts to identify potential gaps or improvements that could be made.

In particular, consideration should be given to the following points.

- The second-tier indicators are quite unbalanced, with health indicators outweighing the others. This is not necessarily undesirable, as long as it is clear that the number of indicators in itself does not reflect the relative importance of the four objectives. Nonetheless, SFC members may want to concentrate on fewer health indicators for greater simplicity.
- The second-tier indicators need not be considered a finalised set. They could be used as an open and fluid set of indicators that change over time depending on on-going events or ad hoc requests.
- The way in which these indicators are communicated will be crucial. It should be made clear that the purpose of the headline indicators is not to accurately capture all relevant information, but rather to summarise and represent a broad range of factors in the simplest possible way and to provide information on the general direction of change.
- A number of indicators were identified for a wish list – consideration should be given as to whether these indicators can be developed for future use. These indicators were: household food insecurity, consumption of key foods and drinks by lower income deciles, food and packaging waste, levels of knowledge about the provenance of food consumed, and proportion of fruit and vegetables failing aesthetic standards.

Next steps:

- This paper provides a preliminary proposal for a set of Good Food Nation indicators. However, they have been compiled over a limited period of time and should be subjected to a further period of consideration by SFC members and SG analysts.
- For the final set of indicators approved by the SFC, it will be necessary to pull together the relevant data into one accessible location.
- The indicator set should be subject to ongoing review. In particular, the set of second-tier indicators may be fluid and change according to the prevailing circumstances and demands.

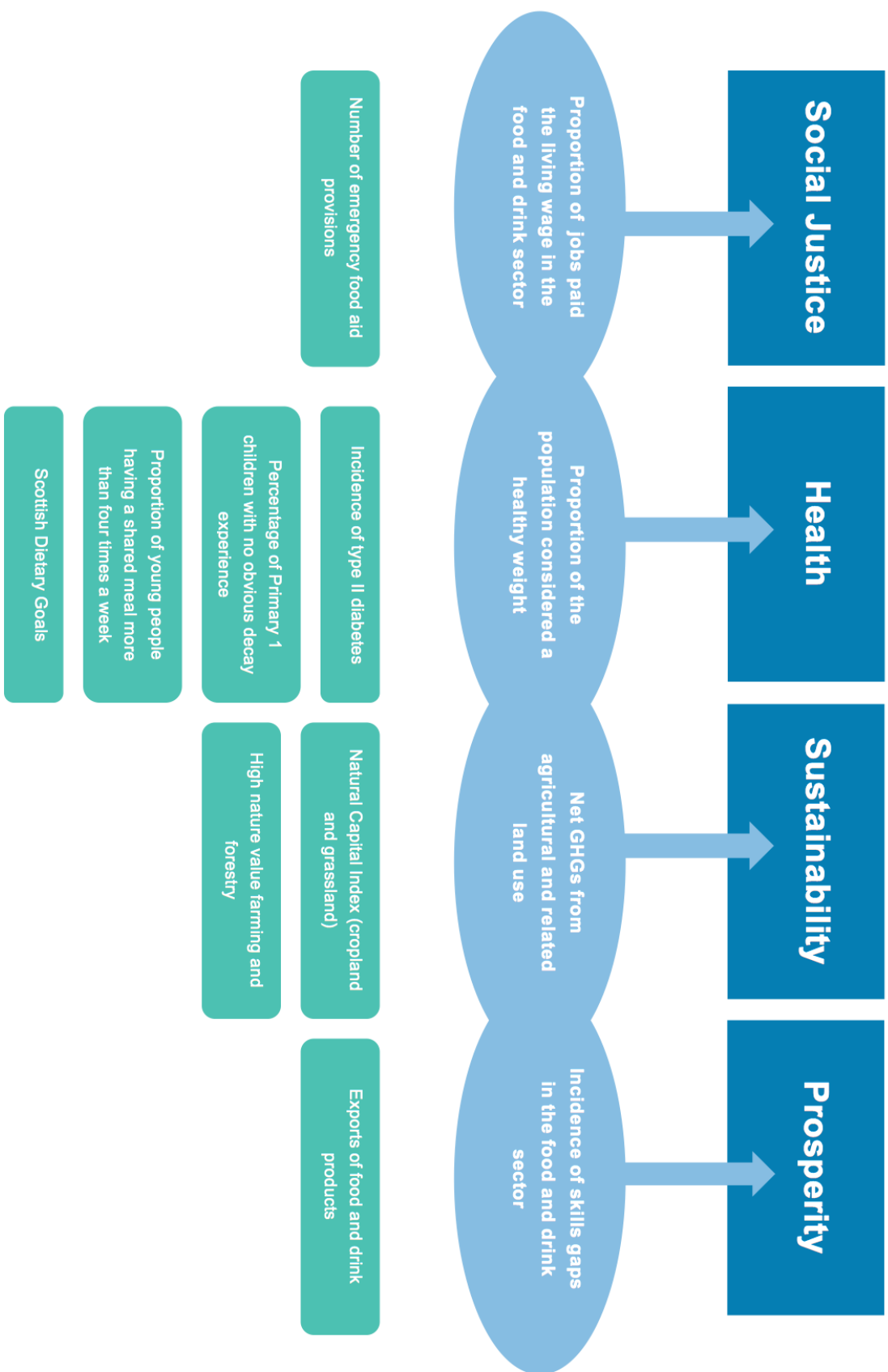


Figure 6. Proposed set of Good Food Nation indicators

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