

The Environmental Sustainability of the Bristol City-Region: Current and Potential Scenarios

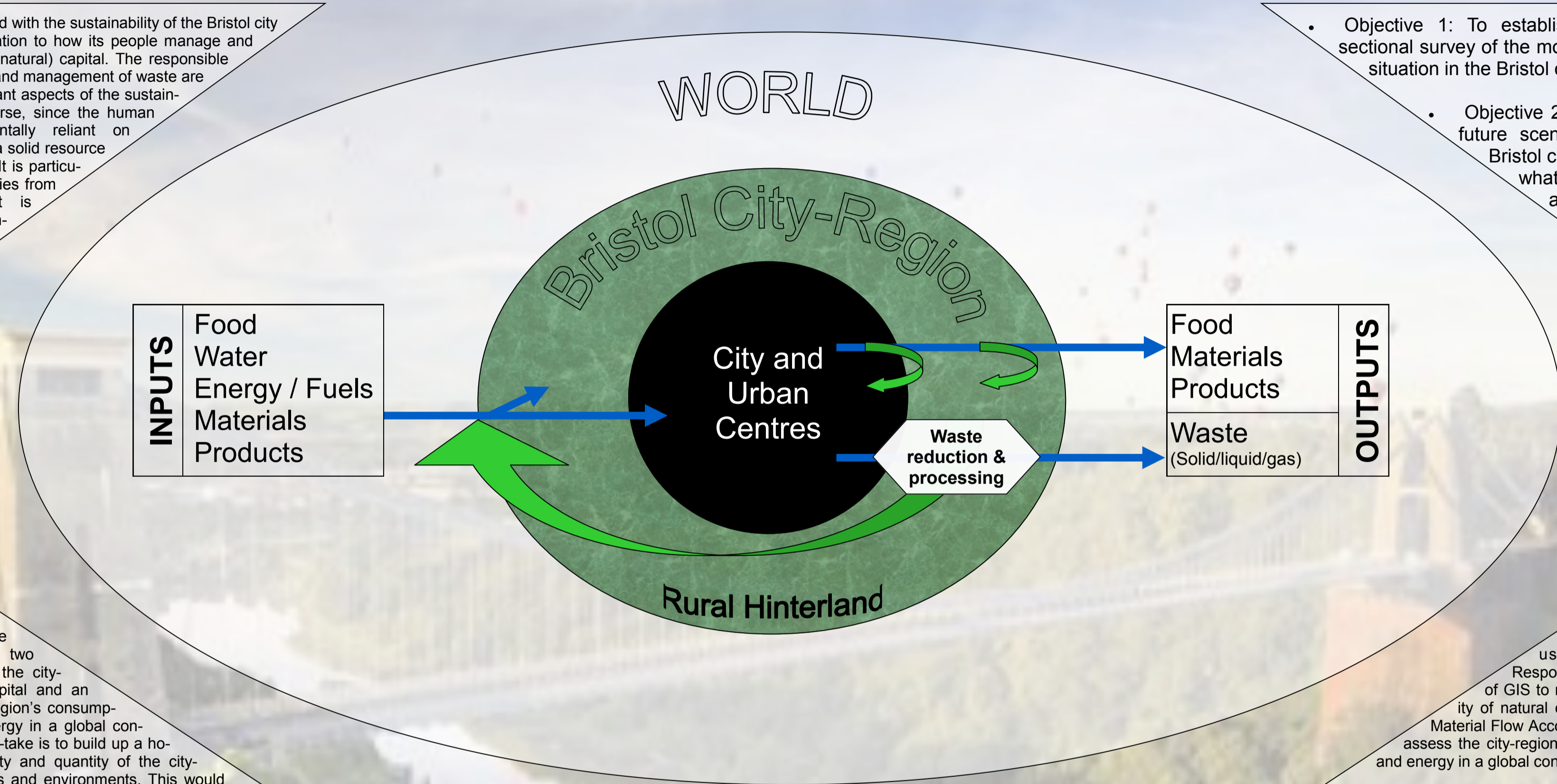
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BACKGROUND

This research is concerned with the sustainability of the Bristol city-region specifically in relation to how its people manage and consume environmental (natural) capital. The responsible use of natural resources and management of waste are arguably the most important aspects of the sustainable development discourse, since the human population is fundamentally reliant on healthy ecosystems and a solid resource base in order to survive. It is particularly pertinent to study cities from this perspective as it is thought that cities consume around 75 per cent of the world's resources (Girardet, 1999).

OBJECTIVES

- Objective 1: To establish a baseline cross-sectional survey of the most recent sustainability situation in the Bristol city-region.
- Objective 2: To examine potential future scenarios for the Greater Bristol city-region and establish what steps are required to achieve the most sustainable outcomes.



METHODOLOGY

The research will commence with a baseline environmental sustainability assessment of the city-region consisting of two parts; a "stock take" of the city-region's local natural capital and an examination of the city-region's consumption of materials and energy in a global context. The aim of the stock-take is to build up a holistic picture of the quality and quantity of the city-region's natural resources and environments. This would enable an appraisal of whether local natural resources are being maintained sustainably and an examination of the extent to which the city-region could be self-sustainable if the need was to arise. The aim of the second part of the baseline assessment is to examine the city-region's consumption of materials and energy in the context of global resource management –the issues of finite amounts of non-renewable resources and the sustainable management of renewable resources that supply the city-region's material and energy demands. From this investigation, various indicators can be produced which allude to how sustainable the city-region is in this regard, such as the calculation of a city-region ecological footprint and specific indicators for industry sector or product type.

The second part of the research will include the development of several potential scenarios for the future city-region, based on 'business as usual' trends and sustainable visions drawn up using the literature on sustainable city-regions and by using focus groups of local stakeholders. This work will lead onto an investigation of the steps required, through means of government policy, behaviour change, technological innovation or otherwise, to achieve the most sustainable visions within a set time-frame.

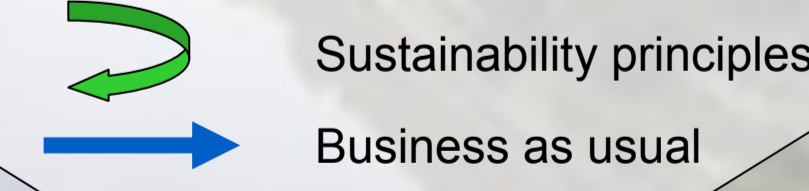
METHODS

Methods have been selected to achieve Objective 1, namely the use of environmental indicators using a Pressure-State-Response framework and the use of GIS to record the quantity and quality of natural capital within the city-region. Material Flow Accounting (MFA) will be used to assess the city-region's consumption of resources and energy in a global context.

RELEVANCE

The research will be guided throughout by four principles of sustainability used within 'The Natural Step' framework (Homberg *et al.*, 1996). The importance of the research is in compiling a holistic assessment of the environmental sustainability of the Bristol city-region, concentrating on both the local and global spatial scales of the city-region's economic activity. The research's methodology for the baseline assessment could also be extrapolated to other city-regions in the developed world. The baseline assessment, visioning process and examination of the steps required to achieve such visions will also be useful to those stakeholders within the city-region who are working towards making it a more sustainable habitation.

Key to the 'Eye of Sustainability':



References: Girardet, H. (1999) *Creating Sustainable Cities*. Totnes: Green Books.
Homberg, J., Robert, K. and Eriksson, K. (1996) *Socio-Ecological Principles for a Sustainable Society - Scientific Background and Swedish Experience*. [Online]. In: R. Costanza, ed. *Getting down to Earth: Practical Applications for Ecological Economics, Heredia, Costa Rica 24-28 October 1994*. Washington: Island Press, pp 17-48.