A quantitative study into blood glucose levels of amateur athletes when running in the aerobic threshold.

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Seven Bridges, Vol. 2 (2014)

Published on: 01/07/2014

To cite this article: Davies, R. (2014) A quantitative study into blood glucose levels of amateur athletes when running in the aerobic threshold. Seven Bridges, 2, pp.107-119.

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Abstract

This article explores the policymaking decisions for the siting of Geological Disposal Facilities and the expansion of Nuclear Waste sites. It explores the theoretical concept of environmental justice in relation to ethical principles surrounding the development of siting policy. Through a theoretical analysis of justice it also looks into the role of these issues making direct reference to the business management of the nuclear energy industry focusing on Cumbria and Sellafield Ltd.

Introduction

Nuclear energy is fast becoming one of the politically popular solutions to the impending energy crisis that threatens the UK. It is seen as a quick fix providing a reliable and largely sustainable resource looking to reducing the cost of energy bills. It is the answer to the problem of fossil fuel power generation and focuses on the carbon efficiency of the product (Bonini, et al, 2006). Yet nuclear power is not a clear solution, as demonstrated below.

The development of the industry will lead to an increase in radioactive waste requiring the building of Geological Disposals Facilities (GDF). To implement this initiative the energy industry must follow government guidelines and research for planning permission as part of a social responsibility. Geological Disposals Facilities are engineered for long term isolation for toxic waste underground. They are constructed usually between 200-1000 metres underground and are surrounded by safety cases acting as barriers to isolate the waste from the environment above ground (NDA, 2010).

This article is going to explore one of the core issues of the problems with risk facing the nuclear energy industry in the UK. These environmental, health, and social risks mean that expanding industries such as nuclear power must focus on economic development and benefits, but also the costs and risks of its activities. These costs will be analysed in the context of environmental justice and the implementation of siting policy offering a framework for future analysis in respect of making just decisions for policymaking on GDF.

The article is split into three parts. The first is an introduction to the nuclear energy industry in the UK. It will focus on Sellafield Ltd in Cumbria looking at the key benefits of the industry as well as key factors associated with the topic of environmental justice. The second part leads on from this drawing on the importance of policymaking ethics focusing on the role of justice in the decision making
process. The final part will address justice in relation to the policy management to GDF siting in Cumbria.

**Part One: The Industry in the UK**

Since 2008, energy policy in the UK has focused on the reduction of CO2 emissions in all energy sources whilst maintaining a successful energy market. Nuclear power itself is the world’s largest source of carbon emission free energy offering a lucrative market alternative (Community Science Actions Guide, 2014). According to EDF Energy, one of the largest energy corporations in the UK, the further development of nuclear energy will boost the economy, create a skilled workforce for a new manufacturing industry reducing the external costs of importing energy and fulfil UK and EU targets to reduce carbon emissions (EDF Energy, 2014).

The nuclear energy site in Cumbria was originally owned by the British Nuclear Fuels Ltd (BNFL) a UK government organisation. In 2008 this became partly privatised and renamed Sellafield Ltd in partnership management with the Nuclear Decommissioning Authority (NDA) (Nuclear Decommissioning Authority, 2014). The landscape has a long history for hosting the nuclear energy site and under current government proposals and changes to the industry mean the expansion of sites to host radioactive waste disposal facilities.

Under the Strategic Siting Assessment (SSA) nuclear energy GDF need to meet the guidelines set out by laws and regulations to gain authorisation and licensing (Atkins, 2014). These siting assessments not only include important geological and safety assessments for hosting nuclear power plants and GDF, but also ethical and moral assessments concerning the industry. In the case of expanding GDF in Cumbria, close to Sellafield, the process of adhering to these decision making processes and justifying the development of the business is under contestation.

The NDA acts as a bridge to deliver safe and publically acceptable solutions to nuclear clear-up and waste management (Sellafield Ltd, 2014). Working under the Energy Act 2004, good governance and the relationship between privatised corporations and government are integral for the energy industry and energy policy. The role of government legislation in this case is arguably to maintain the issues of good governance in relation to the population and land. This being acknowledged it is therefore important to understand how the industry itself attempts to establish ethical and moral standards, through an introduction to Social Corporate Responsibility.

**a) Social Corporate Responsibility**

One way in which nuclear energy corporations can implement ethical business strategies is through the production of a Corporate Social Responsibility (CSR) plan and strategy. CSR are guidelines rather than policy that provide ethical standards to a business on its socio-political and environmental
issues (Joyner and Payne, 2002). It is a form of self-regulation implemented into business models which actively comply with laws, ethical standards and institutional norms. These business ethics and values have been recognised as having a positive economic impact on firms not only in their management strategy but also their shared values (Joyner and Payne, 2002).

CSR is extremely important in regards to the nuclear energy industry. The health risks associated with nuclear energy including radiation exposure, unknown volatility and future effects need to be addressed. Business ethics require a moral consciousness and it is important to combat the intensified pressure of socio-political forces, such as environmental hazards (Bonini et al, 2006). This is integral in relation to nuclear energy through a responsibility to protect the environment and human health. This responsibility is incorporated into messages of environmental justice which will be addressed later.

Sellafield has provided information on its CSR. The responsibility is guided through the approach taken to protect the community through economic development. This is done through the enforcement of local employment alongside 'Destination Management' to increase the prosperity of the local area’s tourism industry (Nuclear Funding Partners, 2013). This is to ensure that the community is not economically damaged but rather improved by the hosting of nuclear energy plants, and more GDF. It is important to note however that this CSR plan includes only the protection of socio-economic development, rather than environmental and human health protection. This particular neglect highlights room to criticise the ethical and moral principles of the business practices of this particular organisation. Nevertheless there is acknowledgement of the key issue behind this issue of Justice, which will form the main focus for the rest of the discussion.

This section has provided a brief overview of the nuclear energy industry in the UK and the economic and political drivers associated with the increasing development of the industry. It has also incorporated the importance of business management and a strategy of business ethics. It has drawn on the issues of moral values which are implored when discussing the issues surrounding nuclear hazards and risks. The following section will look deeper into the ethical and moral standards that the business must be aware off. This is related to the role of government policymaking and siting regulations of GDF in relation to justice and what this means for Sellafield Ltd and the wider nuclear industry.

Part Two: Environmental Justice and Geological Disposal facilities

This section provides a theoretical overview on conceptions of justice applying to policymaking decisions expanding the nuclear energy industry and GDF. Providing a theoretical understanding of justice will allow a normative approach to understanding the current situation in regards to Cumbria. But it also offers an empirical analysis useful as a tool when providing concrete discussions on the practices of licensing and authorisation.
Before moving forward it is important to address the key concept of normative solution. A philosophical understanding of ‘normative’ comes from the ethics of a process which considers what are consider to be normal and moral forms of behaviour (Oxford Dictionary Online, 2014). There are both consequentialist conceptions such as John Rawls contractual and process orientated theory and deontological conceptions, such as utilitarian and outcome based interpretations (Rawls, 1973). Referring to normative solutions it is the applicability of this to policymaking decision and examples. It conceptualises environmental policy decisions in a normative way, suggesting the moral format that they must consider. This allows a critical interpretation of the policymaking if they are not morally acceptable.

Developing policy which then authorises the siting of GDF needs to include a process of justification. Factors which affect the environment and human welfare are central, considering issues such as radiation exposure and toxic waste spillages (World Nuclear Association, 2013). To create fair and just policies is a long and deliberative process taking into account various actors. These actors include the business delegates, government actors and importantly civilian or non-governmental actors (Bryant, 1995). The non-government actors come in the form of not only important voices of local residence but also in regards to justice and nuclear energy, there are organisations which promote against nuclear energy in Cumbria and elsewhere. For example groups ranging from the Lake District National Park, a regional actor, to local actors such as Solway Plain Against Nuclear Dump (SPAND). This local group was made up of members of the local community from Abbeytown, campaigning against the health and landscape risks which hosting an underground GDF would cause (Radiation Free Lake land, 2014). These actors take part in the government policy development process which provides authorisation to the business.

There are three concepts of environmental justice widely addressed in respect of nuclear waste disposal in particular, for example: 1) Justice as distribution; 2) Justice as recognition and 3) Justice through participation (Walker, 2012). The underlying principle of all of these is fairness. For issues of the environment, these are most often conceptualised in relation to the pattern of the distribution, the efficiency of the distribution and the procedure by which the distribution was decided (Been, 1993).

a) Justice as Distribution

Within a ‘free society’ (Rawls, 1971) it is irrefutable that citizens may have different moral concepts of what is right and wrong in the distribution of resources and burdens. These concepts are met when considering nuclear waste policy development. This is often advocated through the role of a cost/benefit analysis relating to the final decision making process. When considering the policy on siting this includes the weighing up of risk assessments to landscapes and the health of the neighbouring population versus economic development of the local community and the increased energy production for the entire country (Grossman and Cassidy, 1985).
Utilitarianism is a theoretical concept of justice applied to distribution and cost/benefit analysis. Under utilitarian principles the fairness of the distribution lies in the maximisation of overall population wellbeing (O-Neill and Light, 2008). This would invoke justice concerns based upon the proportionality of the population exposed to the nuclear waste site; presupposing that the communities with the lowest populations be subjected to these burdens over others. Although the question of population size, and a smaller population being placed at higher risk than the wider population may be a useful tool in establishing the distributive justice on siting practices it may perpetuate injustice as there has been no direct addressing of the socio-economic conditions of the group and how they may be in unequally effected by hazardous factors.

Summarising justice as distribution and its relationship with policymaking, proposing sites must take into consideration the ethical dimensions. The distribution is only just if there are specific factors which mean there is some fairness to replace the unfairness, which must reflect the siting decisions made by government. For example the implementation of compensatory process need to be provided to make sure that those burdens most extremely are not suffering unfairly. The economic development which comes with the development of an industry in an area would add to the positives which can be argued overcome the criticisms.

b) Justice as Recognition

Fraser’s (2000) conceptualisation of recognition as justice is useful in its applicability to understanding environmental justice issues. She argues that it is an injustice if certain attitudes and beliefs of a particular community are ignored and denied full social interaction. This is particularly relevant if it is the consequences of institutional patterns which neglect the voice of a particular population (Fraser, 2000). To summarize, when considering policy decisions on the environment, such as GDF proposal siting, there must exist an equal standing, where the outcome of decision is made without any group becoming purposely neglected by a hierarchal structure of political decision making. This reflects social injustice interpretation where a policy may be classed as unjust if this occurs.

c) Justice through Procedure

The previous two theoretical frameworks of justice have focused specifically on the outcomes of policy decision; consequentiality normative solutions. Alternatively, looking at justice through the procedure moves beyond a normative observation. Justice through procedure centralises on the procedure of policy development as just which has gone through a fair process to get to an outcome (Young, 1983).

In brief to make a just procedure there needs to be three central features to the process; impartiality, neutrality and objectiveness (Light, 2003). These all form a just democratic process, consequentially if
this democratic process is disrupted then concerns arise. In regard to normative ethics in relation to policy decision making if the policymaking procedure fails to maintain just ethics then the assessment can be made that the procedure was not just. If the procedure is just whether specific groups believe they have been unfairly burdened allows this to be overcome.

Above is a theoretical framework viewing the role of justice and policymaking in general. It is now important to address this in relation to the specific case in hand drawing on government policymaking, justice and Sellafield. It will offer a conceptualisation of the issues associated with the implementation of policies in this particular area whilst also offering an empirical analysis to which leads on to the business sector.

**Part Three: Sellafield, Cumbria, A Case Study.**

This section provides an overview of the key issues associated with the specific example in Cumbria. It draws on the process of developing GDF and expanding the nuclear energy industry in the area. It investigates the policy development process taking into consideration the issue of environmental justice, as well as highlighting what this means for Sellafield Ltd and related bodies utilising the framework on justice discussed applying this to a particular case study.

The concerns of justice in this case stem from the role of decision making to increase nuclear energy production and increase the size of GDF. In early 2013 the government provided local authorities the opportunity to offer landcsapes for consideration to become new nuclear waste sites (Cumbria County Council, 2013). Cumbria, Allerdale and Copeland local authorities originally offered that area for consideration and further research in the government proposals (The West Cumbria Managing Radioactive Waste Partnership, 2012). Until the end of January there was a continuous consultation process concluding with Allerdale and Cumbria Council cancelling their original offering to host the proposed nuclear waste sites. Copeland on the other hand maintained its offer. The government then seemingly discontinued its plans, until September 2013 when the case reopened. Once again the proposal, although originally retracted, then became a topic again, with the government continuing research into the geological site.

Proposals offered a compensatory process to neighbouring communities of possible waste sites (Young 1983). This is often a scheme which runs throughout environmental policymaking. Bearing the burden for society calls for some appreciation and offering mainly monetary compensation is thought to overcome the hazards and problems associated with these burdens or create a level of tolerance (Department of Energy and Climate Change, 2013) There was also the prospect of employment prospects within the nuclear industry and support for the development of the tourism industry (Nuclear Funding Partners, 2013).
The policymaking process can be contested for the specific focus on distribution. Increasing the size of the industry as well as creating GDF would further burden the local population with problems. It seems only fair in a utilitarian sense, that the population close to the industry will be the best option to host the site with the wider protection for the rest of the population. Geographically the landscape is suitable and the economic benefits of less risky transportation of waste to wider sites across the country are inevitably useful, particularly for the rural landscape to host the site and protecting the most populated urban areas.

Another justice concern for distribution is considering the effects on the landscape. Cumbria, and particularly the Lake District are important iconic UK landscapes. Developing GDF in such highly regarded landscapes suggests considering principles of justice. The risks associated with nuclear waste facilities could impact on the environment, which means policy decisions need to incorporate a discussion on this, especially when considering the tourism industry central to the economic prosperity of the region.

Concerning justice as recognition although arguably not the most effective normative explanation to address justice, it is none the less important to recognise that if, considering Fraser's principles, all partners are recognised (Fraser 2000). This is demonstrated from both a top down and bottom up perspective. From the bottom up, clearly recognition from local residents views are heard. Yet this was only in original proposals prior to the dropping of the agenda, and after reprioritising the issue the consultation process is missing in part. This leads into a consideration for justice as procedure which follows.

The question of justice as procedure is discussed through analysing the process of decision making. Original proposals were offered by local authorities, and the consultation process followed, as discussed above. The public were able to participate democratically which resulted in the overall retraction to prevent further research into the possible siting of GDF. The procedure itself came to a just decision at that point. However the reintroduction of the proposals caused what could be argued as a wilful neglect to register any opinions from the community, usurping any original power they had, which results in the continued and reinforced criticism and injustice.

This brings into contention that the procedure on a normative level is open to criticism. With regard to direct policymaking and the ethical dimension of siting practices it questions how the decisions are made and how certain concepts of justice are implied subsequently will affect the implementation of policy.

To conclude this section it is important to draw attention again to the connections with Sellafield Ltd. For the business it is not only important for its own strategy to follow ethical guidelines but also to reflect the voices of government proposals and community impacts. As Bonini et al (2006) argue, following ethical guidelines and concerning themselves with socio-political issues such as
environmental justice are opportunities to build up the reputation of the business and raise awareness that they understand the requirements of the area and the consumer preferences.

Although Sellafield employees campaigned for the GDF and expansion of the nuclear energy industry the barriers mounted under the policymaking are increasingly adverse to the project. Taking into consideration the important role of business ethics and representing the business effectively considering the policy decisions and contestation from local residents is a factor to consider before expanding the business itself.

The close relationship between Sellafield Ltd and the NDA means the role of policymaking is intertwined. Not only do they have to coincide with policy decision making but also in line with cooperate responsibility. The corporate responsibility will have to take into account the issues surrounding environmental justice and nuclear energy. They must be willing to understand objections and see possible alternatives taking on accountability for issues.

Addressing the specific case study utilising the framework on environmental justice demonstrates how concerns for policymaking and business management can be supported by demonstrating an acknowledgement of issues such as justice. The framework itself is not critical in relation to concepts of environmental justice, however it has demonstrated how it could be useful for exploring policymaking and business strategies.

**Conclusion**

This article has looked into the Nuclear Energy Industry and the interaction between business management, government policymaking and environmental justice. It has drawn attention to the role of ethical and moral values of businesses to effectively work in line with government policymaking and the key ethical issue of justice associated with the Nuclear Energy and GDF in Cumbria.

By focusing on the theoretical frameworks of environmental justice it allow the siting practices for GDF in Cumbria to be both theoretically examined in regards to the policymaking process, as well as empirically. This then allowed an understanding on how Sellafield Ltd in Cumbria is affected by the policymaking procedures involving the nuclear energy industry. It has provided a framework to which further examples can be analysed in relation environmental justice and business management.

When considering the role of policymaking and environmental justice there are many issues to consider. Creating a fair policy is integral to the reputation and justification for the particular siting. If classed as unfair the disruption for the political environment as well as the industry can not only effect the development which could become slow and increasingly bureaucratic, but also bring the industry into disrepute, criticising legitimacy.
Bibliography & References


