



CASE STUDY

The use of community benefits approaches in the siting of nuclear waste management facilities



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ARTICLE INFO

Article history:

Received 10 January 2014

Received in revised form

4 May 2014

Accepted 26 June 2014

Available online

Keywords:

Community benefits

Added value

Radioactive waste

Siting

ABSTRACT

This paper contributes to the discussion surrounding the use of community benefits (also known as added value) in radioactive waste facility siting programmes. These are becoming more widely used following a series of programme failures around the world, due in the main to a lack of local involvement. The stakeholder groups in three countries, i.e. the Czech Republic, Poland and Slovenia, were invited to respond to a series of questions designed to explore their attitudes and thoughts about the different community benefit approaches and related issues. Results suggest that legal controls offer a framework in which to operate, but within it negotiation seems to be a preferred method, with local conditions providing an additional perspective.

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1. Introduction

Incentive and community benefit packages (also referred to as 'added value') are becoming a common element in many site selection strategies for nuclear waste management facilities (see practices reported in Refs. [1–7]). For example, in Sweden and Finland, an incentive/benefit approach, negotiated at the local level between the proposed host municipalities and the nuclear industry, was used as part of siting processes for a spent nuclear fuel repository. The so-called 'Vuojoki Agreement' was signed in Finland in 1999 and the 'Added Value Agreement' was signed in Sweden in 2009 [7–9]. These agreements represent the 'locally-negotiated' incentive approach. However, in a number of countries a different approach is applied, referred to here as the 'legally-imposed' approach.

In the literature terms such as incentive, reward and compensation have been defined in many different ways. For instance according to Carnes et al. [10] and Sorensen et al. [11] incentive serves as the main category. Carnes et al. provide an incentives classification system in where incentives can be used to "1) mitigate anticipated adverse impacts of normal construction and operations through preventive or ameliorative actions, 2) compensate for actual damages due to abnormal or unanticipated events and/or 3) reward communities for assuming a nonlocal cost or risk". Carnes et al. [10] make a clear distinction between compensation and reward as forms of incentive. The former is an ex post payment for actual damages, whereas reward is ex ante in character for bearing a risk. Reward and compensation both redistribute the benefits of facility siting.

Sorensen et al. [11] explore the use of incentive systems as a means of achieving equity in environmental mediation. They define incentives in general as "mechanisms by which affected communities and their residents are assured of being at least as well

off, if not better, than before the undesirable land use was sited in their midst" [11]. They provide also a second definition, namely that "incentives are broadly defined as actions or programs that reduce locational conflict stemming from noxious characteristics of a facility or land use" [11]. They remark that the incentive need not be only economic actions, but can encompass a wide variety of social and educational functions. Incentive programmes can also consist of a mix of actions that perpetuate over the operational period of a facility, thus they are not talking about a single action, just as Carnes and others have also suggested [11]. Furthermore, Sorensen et al. provide a typology of incentives. Four main incentive types are 1) mitigation, 2) compensation, 3) rewards and 4) participation.

Been [12] focuses on three dimensions of the nature of compensation. These are as follows: 1) remedy, 2) a preventive measure or 3) a reward. According to Been "[a]s a remedy, compensation seeks to make a community whole for damages it will suffer as a result of a facility." As a preventive

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measure compensation seeks “to prevent or reduce the harm the facility will cause”. This is often referred as mitigation. As a reward, compensation seeks “to reward the community for accepting the facility by providing funds or benefits in excess of those required to remedy any harms caused by the facility” [12]. Thus Been does not make a clear distinction between compensation and reward as the latter is one of the sub parts of the former. Practical measures of compensation and community benefits have been introduced for instance by Portney [13,14], Gregory et al. [15], Himmelberg et al. [16] and Jenkins-Smith and Kunreuther [17]. It should also be noted that community benefits discussed above need to be reviewed from ethical point of view to avoid bribery [18].

The objective of this paper is to present an initial analysis of stakeholders’ views on these two approaches to development of community benefits. Theoretical starting points here are the different approaches to fairness in siting introduced by Linnerooth-Bayer [19] and the clusters of policy tools in siting introduced by Aldrich [20]. Linnerooth-Bayer and Aldrich elaborate siting approaches in general, but we limit our focus to one element only, i.e. the approaches to community benefit as a part of siting. Their ideas are outlined and have been taken account of in analysis of the two approaches to development of community benefit packages.

The approaches are defined in the paper as follows:

- (1) The ‘Legally-imposed approach’: here the type of incentives and benefits, their amount and any associated preconditions are mainly determined beforehand in legislation.
- (2) The ‘Locally-negotiated approach’: here the type of incentives and benefits, their amount and any associated preconditions are negotiated between the key players at the local level without a legislative procedure. They are then subject to formal agreement between the negotiating parties.

In the literature these approaches have also been referred to as institutionalized and voluntary compensation [21]. The former refers to a situation where offering local benefits is routine and grounded in a legislative and administrative framework. Its effectiveness is seen to be based on standardizing compensation as a feature in a siting process and thus reducing the bribe-effect. The latter refers to voluntary compensation proposals by facility developers. Compared to the voluntary compensation initiated by a developer, while sometimes it may be difficult to determine afterwards exactly who took the

first step towards the negotiations and which measures helped to build enough confidence between the contracting parties, it is clear that one-sided voluntary compensation approach will not be effective. Over-enthusiasm by one actor alone tends not to work.

The main questions posed were as follows: what are the stakeholders’ views for and against the ‘locally-negotiated’ approach? Who do the stakeholders think should be involved in determining the content of a locally-negotiated approach? The results presented are intended to contribute to the ongoing discussion in a number of countries concerning the role of benefits and incentives in a site selection strategy.

The research data consists of stakeholders’ responses to a survey focused on the use of added value (community benefits) and incentives in siting nuclear waste management facilities conducted as part of the EC-supported IPPA project (Implementing Public Participation Approaches in Radioactive Waste Disposal). In the paper the added value approach is defined broadly, referring to the use in a nuclear waste disposal facility siting program of social and economic benefits, compensation, local empowerment measures and other incentives to encourage involvement of possible host communities. A more limited way of defining added value was introduced by the Nuclear Energy Agency (NEA) in 2007. This drew a distinction between local benefits which have been available traditionally from a radioactive waste management facility and benefits which go beyond these and that may help improve the quality of life in the region. Thus, NEA [22] suggested that added value is limited to cultural and amenity values only.

The survey involved use of a questionnaire developed as part of the IPPA project in three countries: the Czech Republic, Poland and Slovenia. All these countries currently apply a legally-imposed incentive approach [7]. The details of the measures and the current phase of nuclear waste management in these countries are briefly described in the paper. The target audiences for the questionnaires were the stakeholders represented in the national stakeholder groups established to

discuss site selection for a nuclear waste repository in their country [23–25].

The structure of the paper is as follows. Section 2 introduces the theoretical approach to siting approaches from the literature. Section 3 focuses on description of the method, i.e. the questionnaire conducted in the IPPA project. Section 4 briefly introduces the current use of benefits in relation to radioactive waste management in the Czech Republic, Poland and Slovenia. Results are discussed in Section 5 and some initial conclusions about issues such as confidence, trust and the use of the different approaches are presented in Section 6.

2. Theoretical framework

Aldrich [20] introduces a categorization of dominant state strategies for tools for solving socio-political problems such as the siting of a hazardous waste facility. Aldrich states that the choice of dominant strategies is a function of the characteristics of potential and actual opposition from civil society. The two extremes of the state strategies are ‘coercion’ and ‘soft social control’ (see Table 1). The former is based on coercion derived from the state’s monopoly over force and the latter on capturing hearts and minds through persuasion, i.e. education, side payments and subsidies seeking to compensate local communities. In theory the results through coercion are achieved immediately and the means applied are deemed efficient and cost-effective whereas softer control strategies are based on changing citizens’ views and preferences which is often more time consuming and the results more uncertain. Softer control strategies also require the capability for self-reflection by the developer. Thus, it is not only local people who need to revise their viewpoints.

Aldrich’s theoretical approach emphasizes the interaction between the government and citizenry as he investigates the ways in which the characteristics of civil society impact the state’s choice of tools. Aldrich argues that the core determinant of state policy instruments is the strength of relevant groups within a society over time [20]. He states that governments

Table 1
Clusters of policy tools by Aldrich.

Type of policy tool	Goal	Mode of power	Examples
Coercion	Punish resistance	Hard	Police coercion, land expropriation, cutting grants
Hard social control	Block citizen mobilisation, set agenda	Semi-hard	Closing licensing hearings, making NGO registration difficult
Incentives	Reward cooperation	Soft	Offering subsidies, side payments and grants
Soft social control	Change preferences	Soft	Education, habituation, awards ceremonies

(Source: [20, p. 56]).

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