

RISK: Health, Safety & Environment (1990-2002)

Volume 7
Number 2 *IIASA Symposium on Fairness and
Siting*

Article 10

March 1996

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Anna Vari, *Public Perceptions about Equity & Fairness: Siting Low-Level Radioactive Waste Disposal Facilities in the U.S. and Hungary*, 7 RISK 181 (1996).

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Public Perceptions about Equity & Fairness: Siting Low-Level Radioactive Waste Disposal Facilities in the U.S. and Hungary*

Anna Vari**

Background

Management of wastes is one of the most important environmental problems for all societies that produce utility, industrial, medical or other radioactive products. Solving the radioactive waste management problem by democratic processes raises important social questions.¹

Research suggests that public concerns about the siting of a hazardous facility are primarily grounded in distrust of institutions charged with risk management and in equity, i.e., the distribution of risks and benefits among those affected.² Studies focusing on siting a high-level nuclear waste facility³ claim that it is essential to make decisions in a morally sensitive way, leading to an equitable decision or outcome. According to Young,⁴ however, there is no generic concept

* I gratefully acknowledge financial support for research on low-level radioactive waste disposal facility siting in the U.S., Canada and Western Europe from the New York State Energy Research and Development Authority; and in Hungary from the Environment Program of the Hungarian government. I also thank my colleagues Klara Farago, Jeryl Mumpower, Patricia Reagan-Cirincione and Janos Tolgyesi for their collaboration.

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¹ Anna Vari, Ray Kemp & Jeryl M. Mumpower, *Public Concerns about LLRW Facility Siting: A Comparative Study*, 22 J. Cross-Cult. Psych. 83 (1991); and E. A. Rosa, R. E. Dunlap & M. E. Kraft, *Bombs Away, Wastes Stay: The Disposal Legacy and Challenge of America's Nuclear Programs*, in *The Public and Nuclear Waste: Citizens' Views of Repository Siting* (R. E. Dunlap, M. E. Kraft & E. A. Rosa eds. 1993).

² Roger E. Kasperson, *Hazardous Waste Facility Siting: Community, Firm, and Governmental Perspectives* (1986) (CENTED reprint No. 55).

³ Paul R. Kleindorfer et al., *Valuation and Assessment of Equity in the Siting of a Nuclear Waste Repository* (1988) (Rep. 88-67 Wharton Risk and Decision Processes Center).

⁴ H. Peyton Young, *Equity in Theory and Practice* (1994).

of equity that applies to all situations. To understand the different ideas of fairness, it seems promising to analyze how people see equity with regard to the problem of siting radioactive waste facilities.

This paper focuses on the perceptions of fairness associated with the siting of low- and intermediate-level radioactive waste (LLRW and ILRW) disposal facilities. The study investigates publicly expressed responses to LLRW and ILRW disposal facility siting processes in the U.S., specifically in New York, and Hungary. In New York, 100 letters of protest and petitions by residents and environmental groups from candidate siting areas were analyzed. In Hungary, texts of 24 semi-structured interviews with residents, activists, and government officers of the “short-listed” community and county were investigated. Arguments associated with the fairness issue were collected from the interviews and analyzed in terms of the conceptual framework described below.

Competing Views of Fairness in Facility Siting

Recent studies show that different concepts of procedural fairness and competing principles of fair distribution of benefits and burdens lie at the heart of facility siting controversies. Hisschemoller and Midden outline four distinct views regarding fair approaches to the siting of hazardous facilities: technical, public participation, market and distributive justice approaches.⁵ In the case of the *technical* approach, decision makers rely heavily on experts while public participation in siting decisions is seen as undesirable. Alternatively, the *public participation* approach emphasizes the importance of the involvement and influence of all affected parties. The proponents of the *market* approach suggest that host communities should be free to negotiate a “fair price” for hosting a facility. The *distributive justice* approach, however, implies that burdens and benefits should be spread over the whole population as equally as possible.

Linnerooth-Bayer describes three views of a fair approach to siting hazardous facilities: technical-hierarchical, individual-rights, and

⁵ Mathijs Hisschemoller & Cees J. H. Midden, *Technological Risk, Policy Theories and Public Perception in Connection with the Siting of Hazardous Facilities*, in *Social Decision Methodology for Technological Projects* 173 (Ch. Vlek & G. Cvetkovich eds. 1989).

distributive justice views.⁶ The *technical-hierarchical* approach is characterized by strict central government preemption of local authority, limited public access, and a strong reliance on *technical criteria*. The *individual-rights* approach shifts decision authority to the affected communities, and implies public participation and negotiation for compensation and incentives. In this case, *local consent* is the most important siting criterion. Supporters of the *distributive justice* approach strongly criticize the individual-rights approach because it inevitably leads to siting facilities near disadvantaged communities. Proponents of the distributive justice approach emphasize various fairness criteria, including, but not restricted to, the *responsibility* and *vulnerability* of communities.

In a comparative study on the siting of low-level radioactive disposal facilities, Vari et al. found that recent siting processes combine the elements of multiple approaches.⁷ As a result of combining several tools and techniques, facility siting decisions are expected to be *accountable and supportable, efficient and legitimate*. Vari et al., however, show how such criteria contradict or, at a minimum compete with each other.⁸ Therefore, it is inevitable that designers of the siting processes decide on the relative importance of the competing criteria.

In addition to the siting approaches and the associated fairness criteria, there are also competing distributive principles which can be applied to site selection.⁹ The principle of *parity* requires that all parties be treated in some sense equally. In the case of facility siting, this may mean that all communities (counties, states, etc.) get equal shares of the burden. This can be implemented in various ways: the waste can be *physically divided* among communities; an equal-chances *lottery* can be organized to decide which community receives it; a *rotational arrangement* can be implemented where everyone is required to live near the facility some of the time; or *compensation* can be paid to the host community with other communities dividing the

⁶ Joanne Linnerooth-Bayer, *Fairness in Dealing with Transboundary Environmental Risks*, unpublished (1995).

⁷ Anna Vari, Jeryl L. Mumpower & Patricia Reagan-Cirincione, *LLRW Disposal Facility Siting: Successes and Failures in Six Countries* (1994).

⁸ *Id.*

⁹ Young, *supra* note 4 and H. Peyton Young, *Dividing the Indivisible* (1994) (IIASA Working Paper, WP-94-10).

cost. A second distributive principle is *proportionality*, which means that the burden is distributed in proportion to certain fairness criteria (e.g., contribution to the problem, vulnerability, endowment). This principle also can be implemented by the methods mentioned earlier, including — proportional — physical division, lotteries, rotation, compensation, etc. A third principle is *priority* where the burden, in this case the facility, is allocated in whole to one community based on selected criteria.

There is a general agreement in the literature that there is no single morally correct way for allocating scarce resources or burdens.¹⁰ According to Hisschemoller and Midden what people consider “just” or “unjust” largely depends on the political system of which they are part.¹¹ For example, France appears to be a country where siting decisions can be characterized by the technical-hierarchical approach, while in Sweden the public participation elements are emphasized. Linnerooth-Bayer suggests that competing perceptions of fairness are associated with plural world views defined primarily by group or social belonging.¹² She claims that the technical-hierarchical, the individual-rights and the distributive justice views are closely related to three cultural biases revealed by cultural theorists, the hierarchist, the individualist, and the egalitarian mentalities.¹³ Rayner claims that the fairness principles of parity, proportionality, and priority are compatible with the egalitarian, hierarchist, and the individualist world views.¹⁴ He suggests that in negotiation processes, the stakeholders’ world views be analyzed to understand their positions on equity.

The following analysis illustrates how the competing/conflicting approaches to, and criteria and principles of fair facility siting manifest themselves in two low-level radioactive waste management controversies.

10 Young, *supra* note 4 and Joanne Linnerooth-Bayer & Benjamin Davy, *Hazardous Waste Cleanup and Facility Siting in Central Europe: The Austrian Case* (IIASA 1994).

11 Hisschemoller & Midden, *supra* note 5.

12 Linnerooth-Bayer, *supra* note 6.

13 Aaron Wildavsky & Karl Dake, *Theories of Risk Perception: Who Fears What and Why?* 119 *Daedalus* 41 (1991).

14 Stephen Rayner, *A Conceptual Map of Human Values for Climate Change Decision Making*, Presented at the 1994 IPCC Working Group Workshop on Equity and Social Considerations, Nairobi, Kenya.

Low-Level Radioactive Waste Management in New York State

Siting History

In the U.S., ocean dumping was the most preferred LLRW management method until after 1960, when shallow land burial became the most frequently used disposal technology.¹⁵ During the 1960's and early 1970's, six commercial and two governmental sites were established. In the 1970's, three of the six sites, including a facility in West Valley NY were closed because of leakage problems. Consequently, three commercial sites (Barnwell SC, Beatty NV and Richland WA) had to accept an increasing amount of waste. The governors of the remaining states, South Carolina, Nevada and Washington, indicated in the late 70's, that their states were not willing to continue accepting waste from the rest of the country. In 1980, Congress enacted the Federal Low-Level Radioactive Waste Policy Act which made the states responsible for the disposal of LLRW produced within their borders. The act expressed preferences for interstate compacts that, if certified by Congress, could exclude the wastes of states outside the compacts. However, there was slow progress in forming interstate compacts because most state governments anticipated strong public opposition to accepting wastes from other states. The Low-Level Radioactive Waste Act Amendments of 1985 extended access to the existing sites until 1993.¹⁶

By 1993, seven interstate compacts had been formed. Compact negotiations indicated that states favored reciprocal arrangements where host states would be rotated. Some states, in spite of several incentives associated with compacts, preferred to build facilities exclusively for their own generators rather than to enter into compacts. New York was one of the states that chose not to enter into an interstate compact, but to follow the "New York alone" option. The primary reason was that previous compact negotiations suggested that New York would be selected to host a site without guaranteeing rotation of host state responsibilities among the compact members.

¹⁵ Irvin L. White & Jack P. Spath, *How are States Setting their Sites?* 26(8) *Environment* (1984).

¹⁶ Anna Vari & Klara Farago, *From Open Debate to Position War: Siting a Radioactive Waste Repository in Hungary*, 11 *Waste Management* 173 (1991).

Based on a comprehensive environmental impact assessment, in December 1987, the New York Department of Environmental Conservation issued regulations which define regulatory procedures and performance objectives for permanent LLRW facilities, as well as criteria for site and disposal method selection. The regulations excluded certain areas such as densely populated cities, certain Federal and State protected lands, and primary aquifers from further consideration. Siting criteria were defined for various disposal technologies including above-ground, below-ground, and underground mined repositories. The New York LLRW Siting Commission prepared plans to select one or more sites and disposal methods. According to the plans, method and site selection would be carried out in parallel and would be integrated to conduct an environmental impact assessment. In December 1988, ten candidate regions were identified and by September 1989, five potential sites were selected.

The announcement of the ten candidate areas and the five potential sites was followed by substantial controversy. Due to repeated demonstrations and violent incidents, in April 1990, the Governor of New York recommended that the site selection activities be halted. Waste generators, clearly frustrated over the lack of progress in establishing a disposal facility, hired a private company to start negotiations with the community of the Town of Ashford on siting the disposal facility at the West Valley site in exchange for a \$4.23 million community benefits package. In 1991, the Ashford Town Board voted to accept the benefits package. In response, ten West Valley residents sued the Ashford Town Board requesting that the court vacate and annul their resolution.¹⁷ The petition against the Town was upheld, but this was later overturned by the Appellate Division.

In May 1990, the New York legislature directed the New York Energy Research and Development Authority to conduct a study on the feasibility of on-site storage by waste generators for a minimum of ten years, and on the economic viability of establishing a centralized storage facility for Class A non-utility waste. The Energy Authority initiated a process which includes a broad-based public participation component. There has been a lot of public interest in the storage study

¹⁷ Town of Ashford Citizens, Petition to N.Y.Sup.Ct. (Cattaraugus Cnty. 1992).

while many civil organizations expressed their preference for long-term storage in contrast to permanent disposal.

Arguments on Fairness

During the New York process, hundreds of protest letters and individual, citizen and environmental group petitions were received by the Siting Commission, other state agencies, legislators, and the Governor. We analyzed a random sample of 100 letters and petitions to identify arguments associated with the fairness issue. The following are examples of the most frequently expressed arguments.

Some writers argued that, as with the case of high-level radioactive waste, the federal government should take responsibility for the disposal of low-level waste, and find a technically optimal solution to the problem, i.e., a *technically superior* site which would minimize the risk of environmental contamination on the national level:

The state should be actively lobbying the federal government to change directions in regard to siting, with priority given to developing sites in areas of Western states where there are virtually no people, little water, and a few chances for major contamination in event of an accident. (Letter of a Cortland County citizen)

Other writers, however, claimed that a share of disposal facilities proportional to the *volume of waste generated* would be more fair:

After closure of the West Valley facility, the waste was shipped for disposal in other states. In the late 1970's, those states insisted that the disposal responsibility be shared more equitably, and Congress responded with the Low-Level Waste Policy Act of 1980. If the federal government has determined that it is unjust to provide disproportionate dumping in various states, thereby triggering the law, how can the state justify disproportionate dumping in the Chenango area which generates an insignificant amount of waste. (Letter of a Chenango County citizen)

Why don't you place the dump where the waste is made? It's their problem. (Letter of an Allegany County citizen)

In accordance with the *point-of-generation* concept, residents of neighboring Canadian cities also expressed their concerns about transborder risks:

Candidate area 5 is contained in a drainage basin that flows northward across the border into Canada, thus making the basin an international drainage basin. ... Without a doubt, this will adversely affect us, your Canadian neighbors. (Letter of a citizen of Ontario)

Environmental groups also supported storing *waste where it is generated*, emphasizing that this would minimize the risk added to already existing risks.¹⁸

Nuclear power plants are already radioactive dumps. It is questionable whether a federal high-level radioactive waste dump will ever be constructed. A "low-level" facility at a nuclear power plant would add a comparatively small percentage of activity to the waste already there. (Cortland Citizens Against Radioactive Dumping 1990)

Residents of areas where nuclear power plants are located, however, considered the above strategy extremely unfair. They emphasized that risk should not be increased at places which have their share already:

We have been taking the risk of living near three nuclear power plants, and storing the spent fuel rods, so that people in other parts of the state can have electricity. We have taken our share of risk, and refuse to take any more risk. (Letter of an Oswego County citizen)

Due to the requirement for low population density, candidate sites were located in rural communities. Writers living near these sites frequently argue that the powerless rural population had been unfairly targeted. This argument reflects an approach where *economic and social well-being* are important to siting:

People who live in rural areas are always the ones called upon to take waste produced in other areas. We are not hillbillies who are nobody. This is our home and land. (Letter of a Cortland County citizen)

Why can't we put a nuclear waste site dump in Albany? Why can't we put it in the state official's back yard and pollute their homes, family, animals, food and crops, neighbors and lower the value of their homes and property? (Letter of an Allegany County citizen)

Citizen and environmental groups emphasized that no facility should be established in locations where there is no *local support*:

¹⁸ See Cortland Citizens Against Radioactive Dumping, Concerned Citizens of Western New York, Don't Waste New York (1990) (Petition to New York State Legislators).

The Siting Commission has continually tried to force its decisions on unwilling communities; this is totally unacceptable. (Letter of a Cortland County activist)

Give localities more control over the siting, construction, and operation of low-level radioactive waste facilities, ... allow municipalities the authority to license, permit, approve and, at the municipality's discretion, prohibit construction or operation of a LLRW facility within the boundaries. (Cortland Citizens Against Radioactive Dumping 1990)

On the other hand, some citizen groups were opposed to siting the facility in volunteer communities, more specifically, at the West Valley site. Some criticized the West Valley site as technically unsuitable:¹⁹

The following characteristics of the [West Valley] site would most likely preclude compliance with siting criteria established by DEC pursuant to the 1986 Legislation...: (a) persistent erosion and landsliding; (b) shallow depth to the water table and significant fluctuations in the water table; and (c) groundwater discharge to the surface. (Town of Ashford Citizens 1992)

Others opposed the compensation offered by waste generators to West Valley. They argued that communities volunteering to host hazardous facilities are always the *disadvantaged ones*:

It is not fair siting hazardous facilities in economically, politically, and socially disadvantaged communities even if they can be bought off. (Letter of a Cortland County activist)

The benefits package is a bribe. (Letter of a Cortland County citizen)

Management of Low- and Intermediate-Level Waste in Hungary

Siting history

In Hungary, the problem of LLRW and ILRW management emerged in 1976, during the construction in Paks (Tolna County) of the first nuclear power plant. It became clear that the LLRW and ILRW could not be exported to the Soviet Union and the power station had to dispose of the waste within the country.²⁰ The first alternative was to enlarge an existing below-ground repository established by the

¹⁹ See *supra* at note 17.

²⁰ Vari & Farago, *supra* note 16.

Ministry of Health for radioactive medical waste disposal. This option, however, was not endorsed by the government and the nuclear power station decided to establish a new below-ground disposal facility.

A legal and regulatory framework for establishing a new disposal facility had never been elaborated. It was not clear which bodies were responsible for regulation and licensing, and according to what rules. It was necessary to obtain land use permission from county councils and a series of permits from other authorities. Issuing the operating license was the task of the Ministry of Health, but its decision could be highly influenced by other governmental agencies.

The contractors of the nuclear power plant suggested building a below-ground repository for the handling of LLRW and ILRW. Efforts to find an appropriate site started in 1980. Criteria applied in site selection included population density, distance from the power plant, geological and hydrological conditions. As in most facility siting cases under State Socialist rule, selection of an appropriate site was considered to be the task of experts while the public had not been informed about the problem until a decision was made.

In the first stage of site selection, eighteen alternatives were identified, and from this set, the site near the village Magyaregregy (Baranya County) was chosen in 1983. The residents of affected communities including those of the short-listed village were not notified about the process. For further testing it was necessary to get the permission of the county council. This was supposed to be a routine administrative procedure. However, the county council — based on the negative opinion of a group of local experts on geological conditions — refused to give the permit.

In 1985, Ofalu, another village in Baranya County, inhabited mostly by ethnic Germans, was suggested as a site by the experts of the power station. Again, the residents of Ofalu and the nearby villages were not informed. However, experts of the county again were involved and opposed the site. They argued that the soil is not impermeable, some wells are near and the region is seismically active. In spite of these opinions, the county council issued a conditional permit for the testing.

In 1987, preparations for testing started and, shortly afterward, news of the siting decision leaked out. Local residents began to oppose

the siting and wanted to acquire more information. Representatives of the power plant organized public meetings to reassure the public about the safety of the facility. They distributed brochures containing information about the disposal technology and the process of site selection. However, this briefing failed to reassure the public. The residents formed a committee which charged a group of experts independent of the nuclear power plant with evaluating the results of the previous geological tests. Having investigated the data, these experts found the region inappropriate. Because the power station's experts and the residents' experts could not reach a consensus, the county council did not issue the land use permit, and in June 1988, the Ministry of Health suspended the siting.

The government tried to get out of this stalemate by requesting a committee of the Hungarian Academy of Sciences to evaluate the arguments of the opposing expert groups. In the spring of 1989, the nuclear power plant offered financial compensation and some degree of control over the operation of the facility, but local residents refused and demonstrated against the siting. Finally, in June 1989, the committee of the Academy of Sciences formulated its position in a rather ambiguous manner: "the site is not inappropriate." Based on this viewpoint, the Ministry of Health did not issue the license. As of 1994, LLRW and ILRW are stored by the nuclear power plant.

Arguments on equity and fairness

To investigate attitudes toward the facility, the siting process and potential compensation and incentives, a series of 24 semi-structured interviews with key actors of the controversy, including local experts, members of the residents' committee, and representatives of municipal and county governments were conducted in the affected region. Interviews were analyzed to identify arguments associated with fairness. Examples for typical arguments related to fairness follow.

Several interviewees emphasized that a *technically superior* site had to be selected by independent experts:

Experts who are independent of the Paks nuclear power plant should choose the geologically most suitable site in the country. (Official of the Baranya County government)

Others, however, argued that *local acceptance* should be the most important criterion for site selection:

It is the communities who should make the decision whether they would accept the repository or not. (Local government official)

Some local residents claimed that the waste disposal facility should be established in Tolna County *where the waste is generated*:

The Paks nuclear power plant is located in Tolna county. Residents of Paks have the jobs, Tolna county benefits from the new roads, and the development of other infrastructure. Why should Baranya County host the repository? (Member of the residents' committee)

Some suggested disposing of the waste in an abandoned uranium mine in Pecs (capital of Baranya county), where the *additional* risk of waste disposal would be minimal:

Why don't they put the waste into the Pecs uranium mine? It would cause less radiation than previous mining activities? (Resident of the candidate area)

Residents of Pecs, however, vehemently opposed this idea. They considered the city too *vulnerable* for a new hazardous facility:

It is unfair to ship the waste into a city where the background radiation is already higher than in most regions of the country. (Resident of Pecs)

Some local residents opposed siting the facility in *disadvantaged communities* inhabited by ethnic minorities:

Those in Budapest come here and want to put the repository into our communities. They think because we are far from the capital and have no power they can do anything to us. (Resident of the candidate area)

The siting is an assault by the Hungarians at the ethnic Germans. (Resident of the candidate area)

With regard to compensating a community for hosting the facility, most interviewees held a negative opinion. The most frequent responses were variations of the following:

"Human life cannot be compensated;" "The residents must not accept compensation because the hazards will influence future generations;" "Compensation is bribery;" and "We cannot be bought."

Analysis and Conclusions

We investigated fairness-related arguments concerning the siting of LLRW and ILRW disposal facilities in two countries with highly different economic, social, political, and cultural backgrounds. The siting processes also differed in many respects, including the legal framework, the procedures chosen for site and disposal method selection, the interference of the government, the role of experts, and the involvement of the public.

In the U.S., the federal government took a distributive justice approach, emphasizing the criterion of responsibility when assigning the burden for waste management to the individual states. The siting process followed in New York can be characterized as a predominantly hierarchical-technical approach where — at least initially — decisions were based primarily on expert advices and the public played a very limited role. Due to vehement public opposition, the process was transformed into an individual-rights, voluntary siting form where market mechanisms were tested. This approach, however, failed as well. Finally, the very necessity and legitimacy of siting a permanent disposal facility was questioned and long-term storage was advocated as a preferred technology. Long-term storage of waste by generators is actually a way of distributing the burden among multiple communities, a special form of the distributive justice approach.

The Hungarian process can also be characterized as a predominantly hierarchical-technical approach where the — state-owned — nuclear power plant tried to impose the facility on non-willing communities by using expert opinions in the debate. Throughout the controversy, experts of different stakeholders played a key role. Although some attempts were made to offer compensation to the affected communities, these came too late, and individual-rights approach did not play a significant role in the siting process.

The collected data indicate a substantial overlap between fairness-related arguments in New York and Hungary. Criteria proposed for fair site selection in both places were as follows:

1. Technical efficiency:
 - *Minimal overall risk*, i.e., choose the technically safest site;
 - *Minimal additional risk*, i.e., choose an already contaminated site.
2. Local consent:
 - *Preferences*, i.e., those (organization, city, county, country, etc.) who perceive that the facility results in a larger benefit than cost should host it.
3. Criteria for distributive justice:
 - *Contribution to the problem*, i.e., those who generate the waste should host the facility;
 - *Ecological vulnerability*, i.e., those who have their share in risks, should not be targeted; and
 - *Socio-economic vulnerability*, i.e., those who are economically-socially disadvantaged, should not be targeted.

In New York letters, criteria associated with technical efficiency (e.g., site characteristics, population density) were most frequently mentioned, occurring in 29%. The next most important criterion was the "contribution to the problem," cited by 17%. Local consent was emphasized by 9% while ecological or socio-economic vulnerability were mentioned by 7% of the respondents.

In the Hungarian interviews, 61% of the respondents mentioned technical criteria, while "contribution to the problem" was emphasized by 33%. Criteria associated with vulnerability were mentioned by 13%, and local consent was raised by 8% of the interviewees.

Although the investigated samples are not representative of the affected population and the data are not entirely comparable, I believe the data are sufficiently similar to enable us to draw a conclusion that technical efficiency and contribution to the problem are the most emphasized fairness criteria in both countries. In addition to the above data, crucial events of the two case histories also indicate the increasing importance of "contribution to the problem" as a siting criterion. In the U.S., the 1980 federal LLRW Policy Act made each state responsible for disposing of waste within its boundaries. Later, this provision of the law was challenged, and responsibility for waste storage and disposal is being placed on generators. According to Hungarian law, the Paks nuclear power plant is responsible for handling its waste.

The history of LLRW facility siting in the U.S. also indicates an increasing interest in the proportional or equal distribution of the burden as opposed to the priority rule. First, the 1980 federal LLRW Policy Act reflected a preference for decentralizing LLRW disposal among the states and establishing multiple regional LLRW facilities across the nation rather than establishing one national facility. Second, rotational arrangements in interstate compacts where responsibility for waste management alternates among various states (e.g., California and Arizona, South and North Carolina), are specific ways of equally dividing the burden of a facility. Finally, in most host states, there has been a strong public support for on-site storage which is essentially a proportional distribution of waste storage facilities. In Hungary, the issue was the disposal of the LLRW produced by one generator, the only nuclear power plant of the country. Due to this fact and the small amount of waste, only the priority principle was suggested.

As mentioned earlier, a specific mode for dividing the indivisible negative impacts of the facility would be paying compensation to the host community by the beneficiaries.²¹ Several researchers, however, argue that there are values which are very difficult or impossible to compensate, including health, integrity, and cultural values.²² Previous research indicates that due to its catastrophic potential and threats to future generations, the perceived risks of LLRW disposal are likely to lead to resistance to compensation.²³ This assumption is supported by the results of this study; except for a small number of communities, public attitudes towards compensation were fairly negative in both the U.S. and Hungary.

Further analysis of arguments, as well as experience in New York and Hungary reveals possible contradictions among various fairness criteria. Thus, it is unlikely that a siting exercise will simultaneously meet all expectations. Massam has convincingly argued that the study of ethics cannot be expected to provide formal rules which can be applied to derive a correct choice for the location of a facility.²⁴ The

²¹ Young, *Dividing ...*, *supra* note 9.

²² Kleindorfer et al. *supra* note 3.

²³ Judit Juhasz, Anna Vari & Janos Tolgyesi, *Environmental Conflict and Political Change: Public Perception on Low-Level Radioactive Waste Management in Hungary*, in *Environment and Democratic Transition: Policy and Politics in Central and Eastern Europe* (A. Vari A. & P. Tamas eds. 1993); and Vari et al. *supra* note 7.

legitimacy of a siting decision rather depends on the level of consensus between the key stakeholders on the overall necessity of the facility,²⁵ the design of a fair siting process, and the fair distribution of risks and benefits. Therefore, we recommend that, before planning a siting process, the views of main actors regarding the principles and criteria for fair processes and outcomes be explored, discussed, and a mutually acceptable agreement be negotiated.



²⁴ Bryan H. Massam, *The Right Place* (1993).

²⁵ Michael Thompson, *Unsiteability: What Should It Tell Us?* 7 Risk 169 (1996).