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## An Integration of Sociological Risk Theories Explaining the Nuclear Risk Perception in Lithuania

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### Abstract

This paper presents the theoretical and methodological integration of the approaches of cultural theory, psychometric paradigm and risk society theory in the explanation of nuclear risk perception in Lithuania. The research is based on quantitative survey including three samples – representative survey of Lithuanian population (N=1001), Visaginas town (inhabited mainly by nuclear plant workers and their family members (N=301)) and nuclear energy experts (N=56).

The research has revealed that cultural theory's assumptions about the influence of social contexts on the differences in social perceptions of nuclear risks have very low explanatory power; psychometric dimension are rather significant in explaining nuclear risk perception; and risk society indicators are only partially observable. The paper also analyses the lay-expert distinctions and the influence of structural and contextual factors in explaining the difference in public attitudes towards nuclear power. The paper argues that empirical research on nuclear risk perception needs an integration of various theoretical assumptions on the epistemology of risk.

### 1. Introduction

Risk and uncertainty issues are especially distinct in the case of nuclear energy. Nuclear energy, as one of the symbols of the technological development of modern societies, is controversial in its nature. On the one hand, it was created to enable the unlimited production of energy, but on the other hand, nuclear energy creates a new kind of global risks to humanity and environment. The struggle over social priorities is revealed through the nuclear energy discourse that raises question, whether the criteria of *economic rationality* should be put forward the *security imperative*. Moreover, not only there are *inside* risk of nuclear energy industry, due to possible accidents or human mistake, but also new forms of *outside* risk are forming, namely the potential threats of terrorist attacks towards nuclear energy objects, that are forming the new areas of social anxiety.

In Lithuania, the risk, uncertainty and rationality issues are revealed in nuclear power discourse about Ignalina Nuclear Power Plant<sup>1</sup>. The plant generated over 70% of total countries electricity, and had two reactors with largest installed capacity in the world. After Lithuania has expressed the aspiration to enter EU, EU had demanded to decommission INPP, because RBMK reactors, installed in the plant, are considered principally unsafe as the same type of reactors

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<sup>1</sup> Further INPP

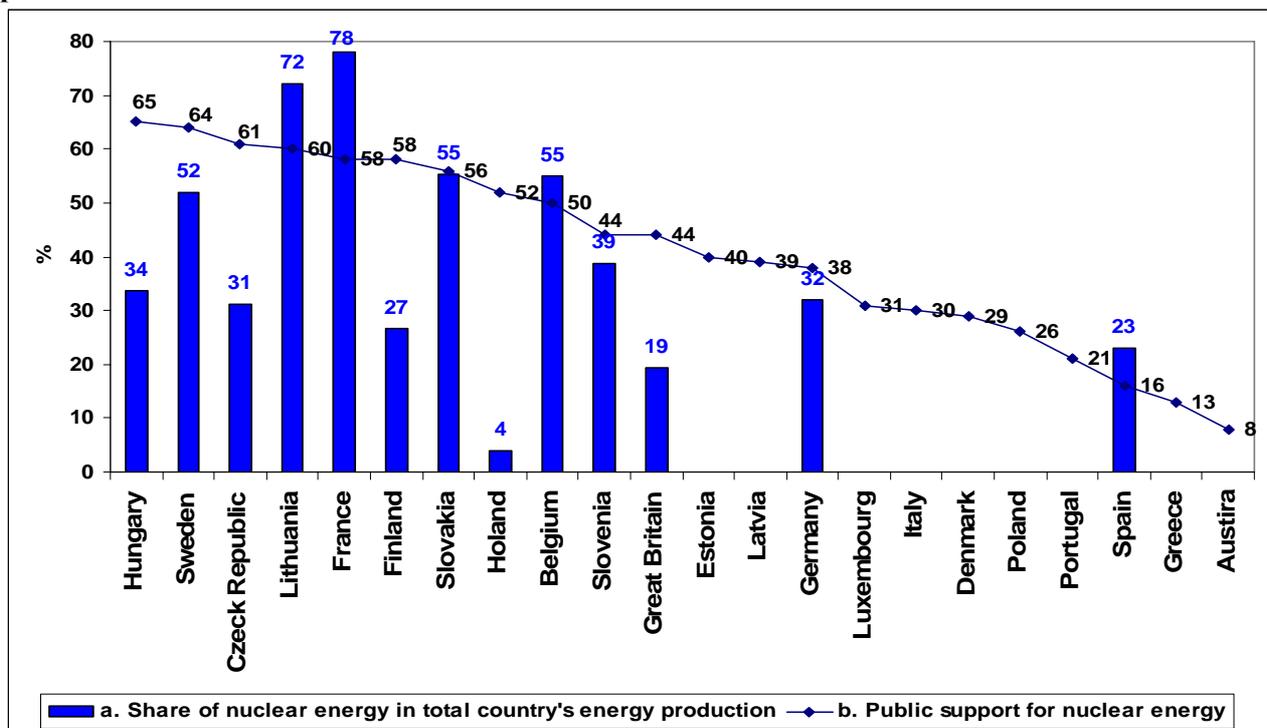
were installed in Chernobyl nuclear power plant The first reactor was closed in 2004, the second reactor will be closed in 2009. The nuclear power discourse prior to the agreement to close the plant indicated the revelation of arguments of political rationality ( the aspiration to enter EU) rather than arguments of environmental concern. The public opinion about nuclear power plant was not extensively researched and used in the political argumentations. In the nuclear power discourse in Lithuania the case of Visaginas city should be mentioned. Visaginas is the city, closest to INPP and mainly inhabited by INPP workers and their family members. The approaching closure of the plants brings the feelings of uncertainty about the future for the inhabitants of Visaginas, also it should be mentions that the town is mainly Russian populated, which makes it ethnically and context special.

Therefore, this paper will explore the integration of several sociological risk theories in researching and explaining public nuclear risk perceptions in Lithuania and opinions about Ignalina Nuclear Power Plant. The second part of the paper analyses the results of representative public opinion survey.

## 2. Public support for nuclear energy in EU countries

Figure 1 presents the compared data about public support for nuclear energy and the share of nuclear energy in total countries' energy production in European Union..

**Figure 1 Public support for nuclear energy in EU countries vs. the share of nuclear energy production in EU countries**



Sources: a. International Atomic Energy Agency (IAEA) 2004. [www.iaea.org/programmes/a2/index.html](http://www.iaea.org/programmes/a2/index.html)

b. Eurobarometer survey 2005 february – march. [www.europa.eu.int/comm/public\\_opinion](http://www.europa.eu.int/comm/public_opinion)

The support for nuclear energy is closely related to the fact, if certain country produces nuclear energy. As data indicates, from eleven countries, that are most supportive for nuclear energy, ten countries produce significant energy share in nuclear plants. And vice versa, from ten countries, that are most opposing to nuclear power, only one produces nuclear energy (Spain). These trends indicate that not only the public opinion about nuclear energy in EU countries is very diversified, but also the causes for this diversification can be searched back in the industry itself, that is how the image of nuclear energy is constructed in mass media and political discourse in nuclear energy and non- nuclear energy countries. The theory of social amplification of risk (Kasperson et al, 1998) is applicable in this case, as presumably political discourse and mass media in countries, possessing nuclear power stations, neglects risks and amplifies benefits of the industry, and vice versa in countries that do not possess nuclear power plants.

## **2. The elaboration of methodological model to explain nuclear risk perception**

Skarderud indicates, that risk is a very modern notion, as it draws the future into the present. We are *now* discussing risk, that we will face after the future change. This is modern notion also because it is related to cosmology. It is related to the mind and our role as calculating and trading individuals Skarderud (2001:335)

An important question in sociological risk analysis, is its *ontological status* (What is risk?) “ Is the risk of something an objective measure of that thing, or is it a subjective value that varies according to the context? (Krimsky, 1992:19). Both objectivist and subjectivist risk notion has proponents in sociological theory. However, even though the pioneers in risk perception research (Fischhoff et al, 1978<sup>2</sup>; Slovic, 1987) elaborated relativistic or objectivistic view to risk, later theoretical and empirical research (Douglas ir Wildavsky, 1982; Douglas, 1992; Beck, 1992; Giddens, 2000 and others ) regarded risk as a social construct. As noted by Thompson and Wildavsky (1982<sup>3</sup>), “risk, though it has some roots in nature, is inevitably subject to social processes”

According to P. Slovic (Slovic et al, 2004:1) modern societies face risk in three fundamental dimensions: “*risk as feelings* refers to our fast, instinctive, and intuitive reactions to danger. *Risk as analysis* brings logic, reason and scientific deliberation to bear on hazard management. When our ancient instincts and our modern scientific analyses clash, we become painfully aware of third reality... *risk as politics.*” These risk dimensions are observable in the

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<sup>2</sup> corrected edition Fischhooff et all, 2000.

<sup>3</sup> cited in Krimsky, 1992:19.

case of nuclear risk perception, that in individual level can be indicated as *risk as feeling*, in expert nuclear risk management it is revealed as risk as analysis, and in political discourse emotional and technical aspects of nuclear risk are integrated into *risk as politics* dimension.

The methodology of nuclear risk and nuclear attitudes in Lithuanian society is based on the following assumptions:

- Nuclear risk can not only be viewed as an objective feature of nuclear energy objects, but also could be analyzed as a *social construct*. Various social and institutional factors can influence social amplification or negation of nuclear risk in the public attitudes towards nuclear energy.

- Nuclear risk perception in society can be influenced by socio-cultural types (egalitarianism, individualism, hierarchism, and fatalism) through which knowledge about risk is being formed and risk perception is mediated.

- In the construction of research methodology, not only social risk perception but also the circumstances of its formation in the condition of risk society are to be considered, namely decreasing public trust in science and technology and their abilities to solve fundamental safety questions of individual and society; the preconditions for active public participation in the decision making processes considering risky technologies are emerging; and finally the need for public reflexivity to consciously rethink its developmental perspectives is emerging.

- Globalization processes lead to the formation of *qualitatively* new kind of risks, emerging from terrorist threats, and this has become an urgent question in Lithuania after joining such international organizations as NATO and European Union.

Quantitative methodology leads to the revelation of dominating risk perception aspects in social consciousness from their complexity.

“The idea is to simplify rather to complicate. The simplified picture allows both the researcher and the policy maker to concentrate on what is important (..) It is the basic presumption of science, that simplification is both necessary and possible – and that all problems cannot be treated at the same time” (Sjoberg, 2000:415)

In the case of social perception of nuclear energy, quantitative methodology lets to operationalize theoretical constructs, explaining factors that influence social risk perception; to reveal significant differences in the perceptions, attitudes, evaluations and ideologies of different societal groups concerning nuclear power.

Further the operationalization of theoretical constructs in the methodology of nuclear risk perception research in Lithuania will be discussed.

**Risk perception.** Risk perception in this research is defined as “intuitive risk judgments” (Slovic, 1987) related to certain technologies.

The factors, that presumably can influence the social perception of technological risks can be divided into three groups: - individual (personal concern about the risk from technological object); local (dangers from physically close technological object) and global (dangers coming from the use of certain technology in general). Social risk perception of Ignalina Nuclear power plant in this research is revealed in three dimensions: (1) the danger of INPP to the environment; (2) the danger of INPP to the human beings, and (3) personal concern for the safety of INPP

Risk perception of INPP in this research is treated as dependent variable, and the factors hypothesized as determinants are explored further.

***Sociocultural types*** There has been an extensive empirical research in the world in the frame of Cultural theory (Douglas and Wildavsky, 1982), analyzing how risk perception is influenced by social contexts or socio-cultural types .It is argued that the selection of dangers depends on the selection of social organization. The rapid cultural change alters the risk perception. According to cultural theory, risk perceptions are not individual, but culturally determined. Individuals are not making individual choices, but they are determined by culturally learned assumptions. Culture helps people to understand risks as knowledge about risks are mediated through socio-cultural process. (Douglas and Wildavsky, 1982: 186-198). It should be noted that the results of various research has indicated that sociocultural determination explains only small part of risk perception variance, therefore these factors can be analyzed only as a part of complex factors that determine the peculiarities of social risk perception.

The research about the social perception for risks from Ignalina NPP included the general statements about economy, culture, general worldviews that indicated four cultural types – egalitarianism, hierarchism, individualism and fatalism (each sociocultural type was represented by 5 statements). These statements were formulated based on the operationalisation of Cultural theory by Dake (1992) and Dake’s adaptation by Norwegian research group (Oltedal, Moen, Klempe ir Rundmo, 2004). In the case of nuclear risk perception it can be hypothesized, that hierarchists and individualists would demonstrate more positive attitude towards the nuclear energy, as these social types perceive the nature as tolerant to the human impact. On the contrary, fatalists and egalitativists would demonstrate more negative attitude, as they perceive nature as getting into the catastrophic situation when influenced by the external powers (such as human activities)

***Features of risk society*** One of most important features, related to the transformation of modern societies, is trust in science and technologies in their abilities to ensure the safety of technological development. According to the risk society and reflexive modernization theories

(Beck, 1992, Giddens, 1997), modern societies are expressing the disillusion in scientific knowledge and science in general, as not being able to reduce the risk from technological development.

Risk society in the questionnaire is operationalized through following variables:

- the threat to the world and humanity from nuclear energy production
- trust in the ability of science and technology to ensure the safety of nuclear energy production
- public participation in the decision making about the main questions related to the nuclear energy development
- the prioritization of ecological symbolic meaning of INPP versus the economic and political symbolic meanings
- the revelation of anti-nuclear ideologies
- the identification of possible terrorist threats towards nuclear power objects (in local and global level)

***Risk dimensions.*** Psychometric paradigm of risk research (e.g. Slovic, 1987; 2000) indicated various risk dimensions that can have an influence on social perception of risk from certain technologies. The strategy of this paradigm in risk perception research is to develop a classification of hazards that could be used in the prognosis of a public response towards the risks coming from these hazards (Slovic, 1987).

The questionnaire of our research included three risk dimensions that were indicated by other researchers (Slovic, 2000; Sjoberg, 2000b; Oldetalal et al. 2004), as having highest explanatory power, namely ‘threat’, ‘trust; and ‘novelty’. In the case of nuclear energy these were formulated as follows:

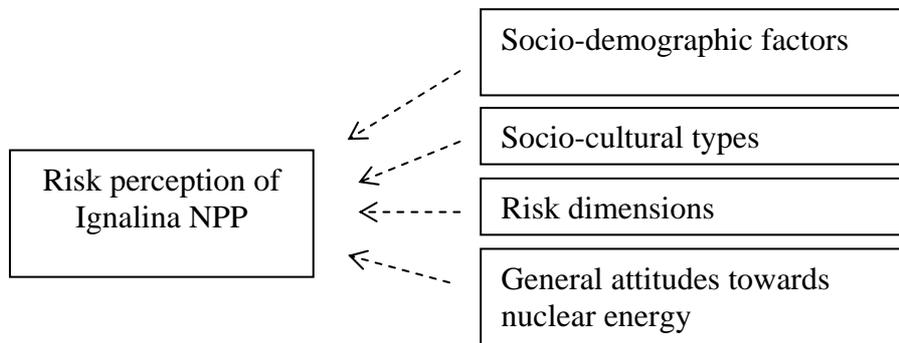
- the threat to the world and humanity from nuclear energy production
- trust in the ability of science and technology to ensure the safety of nuclear energy production
- the novelty of risk coming from nuclear energy

It should be noted that the dimensions of ‘threat’ and ‘trust’ are used both in the contexts of psychometric risk research paradigm and in the revelation of risk society features.

### ***General attitudes towards nuclear energy industry***

The questionnaire includes statements about general attitudes towards nuclear energy industry that are based on nuclear ideologies as identified by Pepper (1984), excluding the statements about nuclear guns, and also they were adopted to reflect the changes in nuclear energy discourse, and also to reflect the specific context of nuclear energy production in Lithuania. Also the question about public participation in the decision making about nuclear energy development was included , e.g. by the means of referendum deciding about the closure or construction of new nuclear plant.

Figure 2 presents the hypothetical model of factors that can influence social perception of INPP risk



**Figure 2 The hypothetical model of factors, influencing the social perception of Ignalina NPP**

Risk dimensions and general attitudes towards nuclear energy express the acceptance of nuclear energy technology in the society. Certainly, perception of INPP is closely related to the general attitudes towards nuclear energy, however it is purposeful to explore their correlations, as it can be presumed that if INPP risk perception is significantly correlated with general nuclear attitudes, then INPP risk perception is less determined by the evaluations of INPP construction and specificity (e.g. RBMK type reactors, competence of workers etc.)

Above presented model does not include the influence of mass media towards the perception of risk, that is also can be regarded as important determinant. However, the quantitative method of public opinion survey does not allow to explore the influence of such “external” factor as mass media towards social risk perception, therefore this model is limited to internal values and individual characteristics.

The research was carried out in three samples (Lithuanian population, Visaginas inhabitants and nuclear energy experts), that let to observe significant differences in risk perceptions, indicating lay – expert divide and the revelation of different priorities in these societal levels.

### 3. Empirical research or nuclear risk perception in Lithuania

The research data includes (1) representative survey of Lithuanian population (N=1001), conducted by public opinion research agency “Vilmorus”; (2) representative survey of Visaginas town population (N=301<sup>4</sup>, conducted by public opinion research agency “TNS-Gallup”.

<sup>4</sup> confidence level for both samples is 95%, confidence interval for Lithuanian population sample is  $\pm 3.1\%$  and for Visaginas sample  $\pm 5.6\%$

Interviews were based on structured questionnaires and were face - to -face in respondents' homes. Research was conducted in June – July 2005<sup>5</sup>, and (3) nuclear energy expert survey (N=56), that included experts from scientific and governmental institutions, related to nuclear energy.

The same semi –structured questionnaire was used in all three samples. The questionnaire for nuclear energy experts did not include the indicators of socio-cultural types of individuals. The questionnaire was also translated to Russian, as the most interviews in Visaginas were carried out in Russian.

### 3.1 The determination of INPP risk perception

Further we will elaborate on the factors, influencing the social perception of Ignalina NPP, as hypothesized in methodological model (Figure 2)

As research results indicated, not all factors, hypothesized in methodological model, significantly influence the perception of Ignalina NPP's risk in Lithuanian society.

**Socio-demographic determination.** Further the correlations of INPP risk perception with various socio-demographic characteristics is analyzed (Table 1 )

**Table 1 Correlations between risk perceptions and socio-demographic characteristics (Lithuanian population survey results, N=1001).**

Lithuanian sample	Danger of INPP to environment	INPP: Danger to human health	INPP: personal concern about safety
Age	0,00	0,01	-0,13**
Education	0,04	0,08*	0,06
Income	0,07*	0,08*	0,03
Religiousness	0,16**	0,12**	0,15**

Spearman rho correlations.

Gender	0,20**	0,20**	0,18**
Nationality	0,20**	0,19**	0,22**
Family status	0,12	0,15	0,15
Religious confession	0,18**	0,16**	0,21**

Pearsons Contingency coef.

\*\*p<0.01; \*p<0.05

From *socio-demographic characteristics*, age, education level, income and family status are not significantly influencing the risk perception of INPP. These trends partially confirm the revelation of risk society (Beck, 1992), where risk is perceived independently of demographic factors. However, this is not an evident conclusion, as certain characteristics, such as gender,

<sup>5</sup> the research was partially supported by the STREP project PAGANINI (Participatory Governance and Institutional Innovation) funded by the 6th EU Framework Programme (contract CIT2-CT-2004-505791).

nationality and religious confession and the level of religiousness are significantly determining risk perception of INPP in Lithuanian population

Women tend to see INPP more negative than men, both considering INPP’s danger to environment and human health, and personal concern about the safety. More negative attitude of women towards nuclear and other technologies was also mentioned by other researchers (e.g. Sjoberg, 2004).

All INPP’s risk perception items correlate significantly with nationality (Lithuanian sample). Lithuanians tend to evaluate the plant more negatively than Russians, Poles and other nationalities. (59.8% of Lithuanian perceive INPP as very dangerous or rather dangerous to environment, compared to 33% of Russians and 43.2% of Poles). Similar tendency can be noticed comparing personal concern about INPP security across nationalities. 39% of Lithuanians are concerned or highly concerned about the INPP safety, compared to 23.4% of Russians and 31.9% of Poles. Religion is also significantly, though not strongly, correlated with risk perception of INPP both in the terms of religiousness and of religion confession. People belonging to Orthodox church tend to evaluate INPP more positively than those belonging to Catholic church. The correlation between nationality, religion beliefs and risk perception was not analyzed in other literature, therefore we could hypothetically interpret basing on the local context, that Russian community may sympathize with INPP workers, most of which are Russians, and this is reflected in their perception of INPP itself.

It should be noted, that the strength of correlation of these characteristics that have significant influence is rather weak.

**Risk dimensions.** Further the influence of psychometric risk dimensions is analyzed. As indicated above, this research explored three risk dimensions, namely ‘threat’, ‘novelty’ and ‘trust’

**Table 2 Correlations between INPP risk perception and risk dimensions (Lithuanian population survey results, N=1001).**

Lithuanian sample	Danger of INPP to environment	INPP: Danger to human health	INPP: personal concern about safety
Trust in science	0.36**	0.36**	0.33**
Novelty of risk	0.08*	0.06	0.06
Threat	0.49**	0.50**	0.486**

\*\*p<0.01; \*p<0.05

Spearman rho correlation coef..

From risk dimensions, ‘trust in science’ and ‘threat’ strongly correlate with items of INPP’s risk perception. The higher people trust in science abilities to ensure the safety of nuclear

plants, the lower they perceive the danger of INPP to environment and human health and the concern about the safety of the plant is lower. The higher people perceive a threat of nuclear energy in global scale, more dangerous is INPP in their view. This correlation could indicate that a negative view towards INPP is not conditioned by the safety shortages of Ignalina plant, but by the rejection of nuclear technology itself. The ‘novelty of risk’ has no significant influence on INPP risk perception. It can be argued, that nuclear energy is no longer perceived as a new technology in the face of technological development, therefore it cannot also longer be treated as unknown risk.

**General nuclear attitudes .** The factor analysis for the various statements (10 statements) about nuclear energy, indicating general nuclear attitudes, was run. Three factors, explaining 50% of total dispersion were extracted, that were named according to the content: *pro-nuclear attitudes*, *politicalized anti-nuclear attitudes* and *‘reflexive’ anti-nuclear attitudes*.

Table 3 shows the correlation between these factors and the perception of INPP risks in Lithuanian sample.

**Table 3 The influence of general nuclear attitudes towards the INPP risk perception (Lithuanian population survey results, N=1001).**

Lithuanian sample	Danger of INPP to environment	INPP: Danger to human health	INPP: personal concern about safety
Pro-nuclear attitudes	0.39**	0.39**	0.31**
Politicalised anti-nuclear attitudes	-0.23**	-0.20**	-0.28**
‘Reflexive’ anti-nuclear attitudes	-0.21**	-0.18**	-0.24**

\*\*p<0.01

Spearman rho correlation coef...

All three types of general attitudes towards nuclear energy correlate significantly with the dimensions of INPP social risk perception. The stronger pro-nuclear attitudes are expressed, the more positive is the opinion about INPP, and vice versa, the expression of politicalised and reflexive anti – nuclear attitudes influence the negative perception of INPP.

General nuclear attitudes influence significantly the perception of INPP risks, which leads to the interpretation, that the specific characteristics of INPP, such as possible construction shortages are not so decisive in peoples’ opinion about the plant, as general acceptance of nuclear technology itself.

### Analysis of socio-cultural determination of nuclear risk perception

As indicated in methodological section above, risk perception can be influenced by social contexts where individuals obtain knowledge and judgments about risk. The research questionnaire included 20 statements, representing 4 cultural types – hierarchism, individualism, egalitarianism and fatalism. Table 4 indicates that the scales are valid for Lithuanian sample, as internal consistency coefficient cronbach alpha is higher than 0.5 for all four scales.

**Table 4 Internal consistency of socio-cultural types scales**

Scales	Lithuanian sample
	N=1001 Cronbach alpha
Hierarchism (5 statements)	0,50
Individualism (5 statements)	0,75
Egalitarianism (5 statements)	0,60
Fatalism (5 statements)	0,76

The correlation analysis of socio-cultural types and INPP risk perception dimensions (Table 5) indicates, that soci-ocultural contexts, to which individuals belong, are not significantly determining the peculiarities of INPP risk perception in Lithuanian society.

**Table 5 Correlation of INPP risk perception with sociocultural types**

(Lithuanian population survey results, N=1001).

Sociocultural types	Danger of INPP to environment		INPP: Danger to human health		INPP: personal concern about safety	
	Spearman rho	Sign. level	Spearman rho	Sign. level	Spearman rho	Sign. level
Hierarchism	-,059	,077	-,059	,077	,049	,131
Individualism	-,061	,070	-,038	,259	,006	,853
Egalitarianism	-,022	,512	-,037	,263	,059	,071
Fatalism	-,041	,216	-,054	,104	,098**	,002

\*\*p<0.01

Spearman rho correlation coef.  $r_s$

Statistically significant correlations is only between fatalism and personal concern about the INPP safety, however, the correlation is very weak (0,098), therefore it can not be interpreted as significant.

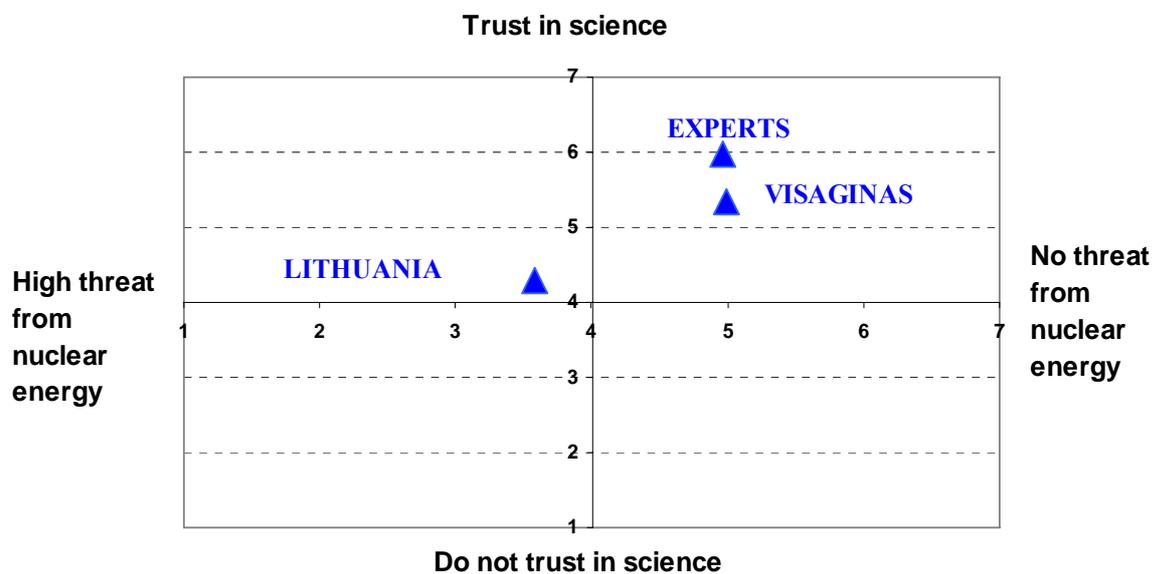
**Risk society.** Research results indicate that there are only several features of *risk society* that are revealed though the nuclear attitudes. The research results indicate that there is certain anxiety about the safety of the nuclear plant in Lithuanian society; however the early closure of Ignalina NPP is mainly regarded as not well – grounded. Also, biggest part of population supports or partially supports the idea of the construction of a new modern nuclear reactor in Lithuania.

Lithuanian society expresses the trust in science and its abilities to ensure the safety of nuclear energy. Scientists are regarded as the main actors who should have the decisive role considering the closure of the plant or the building of a new reactor. However, research indicated certain degree of anxiety about possible threats of terrorist attacks towards the objects of nuclear energy both in global and local level.

### 3.2 The perception of nuclear risk, trust in science and attitudes towards terrorist threats

Figure below indicates the differences in risk perceptions according dimensions of ‘trust’ and ‘threat’ in three samples.

**Figure 3 Public trust in science vs. attitudes towards threat from nuclear energy (means in three samples)**



**Questions:** horizontal scale: What is the threat from nuclear energy for the environment and humans? (1- very high threat; 7- no threat at all)

Vertical scale: Do you trust in the abilities of science and technology to ensure the safety of nuclear energy? (1 – do not trust at all; 7- absolutely trust)

The most positive evaluation of nuclear energy technology according two dimensions is expressed by nuclear energy experts, and the most negative attitude was revealed in Lithuanian population. The important trend in risk perception of Lithuanian population is that the threat from nuclear energy in general is evaluated as rather high (mean score 3,58), while the mean score of the trust in science is rather positive (4.29). Presumably, the perception of nuclear energy threats are more influenced also by other factors, such as terrorist threats.

Further the attitudes towards local vs. global terrorist threats towards nuclear industry objects are presented.

**Figure 4 Attitudes towards global terrorism vs. attitudes towards local terrorism for nuclear energy objects (means in three samples)**

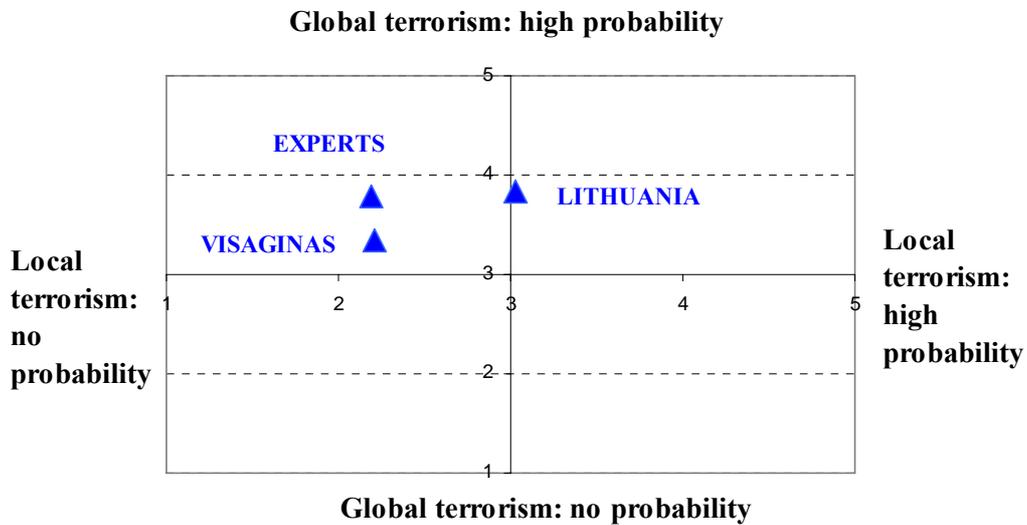


Figure 4 shows the comparison of attitudes towards local and global terrorism towards nuclear energy industry objects in three samples. In all three samples local terrorist threats are evaluated as less probable than global terrorist threats. This difference between evaluations could possibly be interpreted as ‘optimistic’ risk perception (Lofstedt and Frewer, 1998), while people tend to perceive general risks as higher than personal risks, or risks from close objects. This trend also identifies the view that “we” are not still a part of “others”, there is no expressed perception that Lithuania is an inherent part of world nuclear industry with the same treats in the face of globalization.

#### 4. Discussion

Risk can be viewed as not only the objective feature of technological objects, but also as a social construct that is shaped in the influence of various social, cultural and institutional factors. The theoretical concepts of risk society, psychometric risk perception paradigm and socio-cultural determination of risk perception are integrated into the methodological model for empirical research of nuclear attitudes, nuclear risk perception and its structuring factors in Lithuanian society.

The results of empirical research of nuclear risk perception in Lithuania indicated following tendencies:

1. Such socio-demographic characteristics as gender, nationality, religion confession and the level of religiousness have significant influence towards nuclear risk perception in Lithuanian society. However, nuclear risk perception, differently from research in other countries, does not depend on age, education level and income level. Therefore, social perception of nuclear risk is more influenced by the context – specific aspects, than by general structural factors.

2. INPP risk perception is significantly determined by the general attitudes towards nuclear energy. This leads to the conclusion, that those, who tend to negatively evaluate Ignalina NPP, are mostly determined by general anti-nuclear attitudes and the rejection of technology itself, but not by the concern about specific features of INPP, for example construction shortages or mistrust in plants' workers. Also, this correlation partly explains why most of Lithuanian society identifies early closure of INPP as not well-grounded.

3. Socio-cultural types (hierarchism, individualism, egalitarianism and fatalism) are distinct in Lithuanian society to some extent, however, as indicated by research results, socio-cultural contexts in which individuals receive and mediate knowledge about risk, do not significantly influence nor general nuclear attitudes, neither INPP risk perception.

Research results indicated that there are only several features of *risk society* that are revealed through the nuclear attitudes. The research results indicate that there is certain anxiety about the safety of the nuclear plant in Lithuanian society; however the early closure of Ignalina NPP is mainly regarded as not well – grounded. Also, biggest part of population supports or partially supports the idea of the construction of a new modern nuclear reactor in Lithuania. Lithuanian society expresses the trust in science and its abilities to ensure the safety of nuclear energy. Scientists are regarded as the main actors who should have the decisive role considering the closure of the plant or the building of a new reactor. However, research indicated certain degree of anxiety about possible threats of terrorist attacks towards the objects of nuclear energy both in global and local level.

## **Bibliography**

Beck U. (1992) *Risk Society: Towards a New Modernity*. - London: Sage

Dake, K. (1992) *Myths of Nature: Culture and the Social Construction of Risk* // Journal of Social Issues, Vol.48., n.4, pp.21-37.

Douglas M. and Wildavsky A. (1982) *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers*. – Berkeley: University of California Press.

Douglas M. (1992) *Risk and Blame: Essays in Cultural theory*. - London and New York: Routledge.

Eurobarometer survey 2005 February – March. [www.europa.eu.int/comm/public\\_opinion](http://www.europa.eu.int/comm/public_opinion)

Fischhoff, B. et al. (2000) *How Safe is Safe Enough? A Psychometric Study of Attitudes Toward Technological Risks and Benefits // The Perception of Risk*. Ed. P.Slovic, - London: Earthscan Publications.

Giddens, A. (1997) *Modernity and Self Identity. Self and Society in the Late Modern Age*. – Cambridge: Polity Press.

Giddens, A. (2002) *The Consequences of Modernity // Contemporary Sociological Theory*, eds. C. Calhoun et al. – Blackwell Publishing.

International Atomic Energy Agency (IAEA), 2004, [www.iaea.org/programmes/a2/index.html](http://www.iaea.org/programmes/a2/index.html)

Kasperson, R.E. et al (1998) *The Social Amplification of Risk: A conceptual Framework// The Earthscan Reader in Risk and Modern society*, eds. R.Lofstedt and L.Frewer. – London: Earthscan Publications

Krimsky, Sh. (1992) *The Role of Theory in Risk Studies // Social Theories of Risk*, eds. Sh. Krimsky and D. Golding, - London: Praeger, pp.3-22

Lofsted R.E. ir Frewer L. (1998) *Introduction // The Earthscan Reader in Risk and Modern Society*, ed. R. E. Lofsted ir L. Frewer, London: Earthscan Publications.

Olstedal, S. et al (2004) *Explaining Risk Perception. An Evaluation of Cultural Theory*. – Trondheim: Rotunde publikasjoner, n. 85.

Shrader – Frechette K.S. (1980) *Nuclear Power and Public Policy. The Social and Ethical Problems of Fission Technology*. – Boston: D. Reid

Sjöberg L (2000) *The Methodology of Risk Research // Quality and Quantity*, 34:407-418

Skarderud, F. (2001) *Nerimas. Klajonės po modernųjį Aš.* (Unrest. A Journey in the Modern Self) – Vilnius: Tyto alba.

Slovic, P. (1987) *Perception of Risk // Science*, vol. 236, pp. 280-285

Slovic, P. et al. (2004) *Risk Analysis and Risk as Feelings: Some Thoughts about Affect, Reason, Risk and Rationality // Risk Analysis*, Vol. 24, No.2, pp.1-12.

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