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CULTURAL TYPES AND THE PERCEPTION OF CURRENT ENVIRONMENTAL RISKS BY LOCAL COMMUNITIES OF THE BALTIC SEA REGION

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This work presents findings from research into the relationship between the structural organisation and cultural attitudes of local communities in the Baltic Sea region and the way they perceive environmental risks. The response of the Kaliningrad community to the development of a local potassium and magnesium salt mine is used as an illustration. The article deals with how local communities perceive the image of risks formed and reproduced via various communication channels. The structural context and the context of communication are taken into account. Another focus is on how this perception is affected by the type of community members' cultural attitudes (according to Mary Douglas's grid/group model). The space of categorical variables obtained through multiple correspondence analysis (MCA) aids in clustering the cases (respondents) as well as in testing theoretical assumptions for compliance with the findings. The communicative practices characteristic of all the clusters (classes of cases) are examined; the relationship between the structural organisation of groups, their cultural attitudes, their perception of environmental risks, and the performance of environmental agencies are explored. An evaluation of the comparative efficiency of different ways and means of risk communication with the identified groups is made. It is concluded that the proposed model is methodologically promising and there is a need for differentiated risk-communication strategies.

Keywords:
cultural approach, local community, environmental risk, grid/group model, Baltic region

Studies of environmental risk perception in Baltic region states

The geographical and political context lends urgency to the environmental agenda in Baltic region states, which have become associated with legal and institutional environmental control, environmental initiatives of intergovernmen-

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tal non-profit organisations, and green public sentiment. The latter requires not only regular monitoring but also in-depth research into the public perception of current environmental risks, as well as of factors behind this perception.

Since the 1990s, environmental sections have been featured in questionnaires of regular opinion monitoring services, such as ISSP (International Social Survey Programme), Eurobarometer, and Gallup World Poll. An interesting case of an in-depth study of local Arctic communities is the CAVIAR project, which focuses on the impact of environmental challenges on the formulation of adaptive strategies and policies [1].

A recent Eurobarometer survey (November 2017) shows that 57% of respondents thought that protecting the environment was 'very important'; another 38% considered it 'fairly important'; only 5% said that it was 'unimportant' to them. There are striking differences between countries. In Sweden, protecting the environment was 'very important' to 87% of respondents; in Lithuania, to 42%; in Poland, to a mere 40%.[1]

The structure of environmental risks Europeans speak of is also diverse. Climate change ranks first (51% of respondents mentioned it), followed by air pollution (46%) and the growing amount of waste (40%).[2] These results vary by country, as well. The Nordic states of the Baltic region are most concerned about climate change (70% in Denmark, 68% in Sweden, 63% in Germany and Finland); Poles are worried about air pollution; the growing amount of waste is the number one issue in Lithuania (65%), Latvia (61%), and Estonia (54%).[3]

In another survey[4], respondents noted industrial air pollution (3.97 on a five-point scale), pesticides (3.88), and water pollution (3.85).

A posthoc analysis of survey data is a common technique. While allowing macroregional combinations, it can also take into account sociodemographic factors and other variables covered by questionnaires. An example of such analysis is a study of the perception and assessment of climate risks in Baltic Sea states [4]. An additional dimension explored in the research is residents' attitude towards institutions responsible for managing these risks.

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[1] Attitudes of European citizens towards the environment, *Special Eurobarometer 468,* available at: http://data.europa.eu/88u/dataset/S2156_88_1_468_ENG (accessed 21.04.2020).

[2] Ibid.

[3] Ibid.

[4] International Social Survey Programme: Environment III–ISSP 2010. GESIS Data Archive, Cologne. ZA5500 Data file Version 3.0.0, *Gesis*, available at: https://search.gesis.org/research_data/ZA5500 (accessed 21.04.2020).

Naturally, the range of possible variables and, therefore, the depth of analysis of interdependencies between risk perception, on the one hand, and social, cultural, and political conditions, on the other, are limited. But other factors also affect the situation. Firstly, there are intranational differences in the susceptibility of concrete local communities to certain risks. Secondly, an analysis should allow for the effect of supranational social and economic conditions. It has been shown that both socio-structural factors (see, for example, [3]) and beliefs influence attitudes to risk.

It has been argued that investigating adaptive responses of local communities to environmental challenges requires examining technological innovations and the institutional aspects that make it possible to use its economic resources for the common good (such as sustainable management) [4, p. 590; 5].

A comparative study of two Norwegian communities highlights the role of two other local components — social capital and economic conditions [6]. Social capital (stable ties with politicians and people outside the community responsible for making decisions; a network of trust) enables communities to give and sustain adaptive responses to natural risk on a day-to-day basis, whereas the economic situation determines the capacity for long-term adaptation and survival of communities.

A study by Finnish colleagues has established that social solidarity may reduce anxiety in local communities about current risks (the authors focus on social risks), create a sense of security, and lower the level of fear. However, if the incidents repeat or spread, this sense of security is eroded while the protective effect of solidarity becomes limited [7].

A pragmatic point of view has been proposed by a group of Danish researchers led by Jacob Taarup-Esbensen. They have demonstrated in a series of works how mining companies while creating risks for local communities interact with them to bring a dramatic change to the local infrastructure and economy [8, p. 229—233]. In providing the community with economic goods, companies legitimize their activities and create a situation where environmental risks are counterbalanced by an equally important economic one — that of the company going out of business.

The institutionalisation of such a symbiosis between companies and local communities calls for drawing up conventional regulations. There is also a need for techniques for potential damage assessment, environmental monitoring, and response measures. As a rule, all this is done with participation from expert organisations and authorities — a good example is the SCORE methodology de-

vised in southern Sweden [9]. Persistent ethical issues and a lack of agreement in the community lead to mistrust. They also increase the perceived seriousness of the risk and create a sense of unfairness, which grows in the community with time. The case of two Finnish settlements that became storage sites for nuclear waste indicates as much [10].

An analysis of international data on the perception of environmental and technological risks [3, p. 31—55] shows the dynamics of socio-economic systems to be a major factor: the level of perceived risks is lower in individuals whose social status is better protected and who live in a stable socio-economic environment.

In a different work, the authors point to persistent differences in protest behaviour determined by the perception of environmental threats. When explaining why protest activity in Western and Nordic Europe is more intense than in Central and Eastern Europe, they stress the influence of age and gender [11].

A lot depends on how social agents and local communities interpret the nature of risks, the imminence and potential scope of threats, and possible causes of unwanted events. Another central factor is whom they consider responsible for preventing risks. The infrastructure, the economy, and the dynamics of social development also have a pivotal role here.

Comparative studies of the perception of risks, including international and cross-cultural ones, often employ psychometric and cultural approaches [12, p. 236]. There are numerous detailed analyses of how risk perception can be explored using these approaches and what strengths and weaknesses they have [13—21]. Here it suffices to note that the psychometric paradigm brings to the fore individual perception of risks and attempts to describe universal patterns of perception (sometimes allowing for cultural factors). The cultural approach emphasises social structures. It highlights changing and stable cultural patterns that affect how big groups, rather than individuals, perceive risk. Despite differences in these approaches, the literature acknowledges that both are poorly applicable empirically (they lack explanatory power; their theoretically devised classification cannot be reproduced; direct cross-country comparisons are problematic) [16; 18; 22; 19, p. 4—13]. The cultural approach is relevant for studying risk perception by local communities, which share a common culture, a communication system, and networks of social ties and group influence. At least, it seems to be better suited to the task than an approach that determines the universal features of individual perception, particularly by employing statistical methods

(for a successful case of utilising the cultural approach, see [23—27]; for a comprehensive review, [28]). Nevertheless, the cultural approach gives plenty of opportunities for comparisons if the communities are classified according to their cultural type.

Nevertheless, works on the perception of environmental risk images created in the communicative environment of Baltic communities devote almost undivided attention to the structure and content of media images while paying little attention to the cultural characteristics of communities [29; 30]. Moreover, the methodological views of the authors are rarely explicated. We believe that abstracting media images from the local social, cultural, and political context, in which the beliefs and attitudes of residents are rooted, impoverishes the understanding of what affects the perceived and reconstructed images of risk.

Problem setting and approaches to research

As previously stated, risk perception is a complex object that not only deals with threats and agents perceiving them, but also concerns itself with communication channels, created risk images, local cultural, economic, and political contexts, and the social ties and relationships of risk-perceiving agents. In this sense, local communities are the perfect research subject because they enable one to track connections between all these elements through appealing to a concrete case.

This study investigates how the local Kaliningrad community perceives the risks of developing a potassium and magnesium salt deposit in the village of Nivenskoe. This issue was brought to public attention as early as 2014 at the start of development works. It immediately sparked off heated debates. Public hearings were held that brought together residents, environmental non-profits, researchers, and officials. The first publications in the local media date back to that year. Potential risks of deposit development were discussed from day one, albeit the project promised considerable investment in regional and municipal economies, an overhaul of the transport and social infrastructure, new jobs, and other benefits.

Among the top concerns were soil, water, and air pollution, potential damage to the ecosystem and human health, the small distance between the mine and the village, noise, vibrations, and the possible opening of a sinkhole at the mining site. The potential economic benefits of the project were questioned. Residents

feared that the company would hire only outside the village. Another concern was that the environmental risks would devalue property in Nivenskoe so that the owners would no longer be able to sell it and move house.

The mining company provided rebuttals supported by expert reports. Yet, despite its attempts to keep the project open to public scrutiny, the tension was rising. Activists set up a group, which launched a website, created pages on social media, and mounted a protest campaign. The group held rallies, spread awareness of its cause, and finally attracted sufficient attention from the regional media. Company representatives, in their turn, suspected some leaders of the group of pursuing financial and political interests.

An uneasy attitude to the project and the complexity of risk communication about possible threats make the situation in Nivenskoe a fascinating research subject. I studied the images of deposit development risks created by the local media and measured attitudes to the project. This work presents my findings concerning the socio-structural and cultural models of local communities and the identification of stable groups within communities. Distinct cultural preferences shape the communicative practices and environmental risk perception of these groups.

This work relies on the cultural approach and uses the premises and cultural types described by Mary Douglas [31; 32] within her theoretical grid/group model. Among other things, her findings cast light on the connection between risk perception and one of the four possible ways of the social organisation of communities. The study also draws on cultural cognition theory [37], which deals with cultural types from a different perspective.

The group and grid dimensions resemble axes in a coordinate system. They represent the 'ideal types' of risk perception logic and social organisation. The group dimension measures the authority of a group's ethos (the height of the barrier a group builds between itself and the outer world), whereas the grid dimension gives a measure of power and control over the behaviour of community members. This control concerns not only community membership, but also other structural factors, such as class, ethnicity, and gender.

Based on these two dimensions, Douglas and her colleagues identify four ideal types of cultures and four approaches to risk:

1) hierarchists (high group/high grid) respect authority and group norms, share the group's expectations about the risk and trust institutions;

2) egalitarians (high group/low grid) identify themselves with the group, tend to blame outsiders for the risks and not to trust norms coming from without, approve of social equality and shared responsibility for risks;

3) individualists (low group/low grid) are independent and enterprising; they advocate self-regulation when it comes to risks, trust individuals more than organisations, renounce external restrictions, believe in the market forces, and view risks as not only threats but also opportunities;

4) fatalists (low group/high grid) stand out for cohesiveness; they consider themselves subject to external constraints and tend to resign themselves to fate when it comes to risk; they believe that they have little control over it.

As mentioned above, this model and the measurement tools proposed in the original variant [32—34] are not always applicable to concrete empirical material. When measuring preferences along each axis individually, respondents may express contradictory opinions. One may be an hierarchist and individualist or an individualist and egalitarian at the same time [17; 35; 36]. Thus, in developing survey tools for this study, I drew on an alternative experience of measuring cultural preferences for risk management, namely, cultural cognition theory [37]. It differs from earlier proposed measurement techniques in that the grid and group axes are operationalised as continuum scales with two poles. Respondents select a point on the scale corresponding to their position while answering how much they agree with a series of statements [38]. This way, respondents have to give their opinion about variables on two scales: hierarchism/egalitarianism and individualism/communitarianism, being unable to express mutually exclusive positions when dealing with one statement. This method was successfully tested during the US census [39—41]. To estimate how much respondents agree with a given statement, I used five-point Likert scales, which provide greater consistency than four-point ones [42]. The questionnaire also contains a series of questions about respondents' socio-demographic background; their perceptions of the current environmental situation; their perception of environmental risks in general; their beliefs concerning authorities, businesses, and non-profits; their views on different communication forms and channels; their attitudes towards mine development.

The survey was carried out door-to-door. One permanent resident aged 18+ was interviewed in each household. The quota sample was representative with respect to age and gender. Random route sampling was used. One thousand respondents were surveyed in Kaliningrad; 300, in Nivenskoe (Bagrationovsk district, Kaliningrad region). The confidence level was 95%; the confidence interval ±5%.

Result analysis and interpretation

Multiple correspondence analysis (MCA) was used to construct the space of cultural beliefs and explore how they are connected with communicative strategies and practices. MCA is a geometrical data analysis method meant for the statistical treatment of categorical variables [43]. This method is effective in considering connections between several nominative variables at once. It is a useful tool for risk perception studies which often require analysing attitudes to risks, categories of risk, trust in public institutions, and personal qualities of respondents [44]. Despite these benefits, MCA is rarely used in research on risk. I did not come across a single work utilising this method within the cultural approach.

The essence of this method lies in transforming elements of a two-way table into points of a geometric space. The two-point clouds obtained this way are a cloud of individuals (or, in our case, respondents) and a cloud of categorical variables (attitudes toward risks, cultural beliefs, and information practices).

The categories and individuals that contribute to clouds are called active. Auxiliary categories are not used to determine distances between individuals. However, if one knows how they are linked to respondents, one can locate their position on the same plane. Thus, auxiliary categories are a valuable interpretative tool. The categorical (active) variables are answers to categorical questions relating to cultural beliefs and features of the community's structure (cultural cognition scale). The dependent (auxiliary) variables are attitudes to environmental risks, characteristics of communicative practices, and respondents' strategies.

MCA employed 18 variables — statements corresponding to varying degrees of agreement on a Likert scale (statements identified as culturally irrelevant during preliminary testing were eliminated). Zero-value, or neutral categories, and categories with a selection frequency of below 5% were not included in the analysis. There were 70 categories chosen as a result.

The modified values [45] of the first two axes are $\lambda_1 = 0.615$ and $\lambda_2 = 0.188$, whereas their modified cumulative values are 0.803 (i.e. they account for 80% of the dispersion). Since the third axis adds only 5% to that figure, I will use only the first two.

Table contains an entire list of variables (categories) that made a considerable contribution to the axis, along with the coordinates of these categories in the constructed space. The first two letters in the category code stand for the scale to which the statement belongs: HE is hierarchism/egalitarianism; IC is

individualism/communitarianism. The average contribution of one category to an axis is 1.4%. Therefore, the analysis used only variables with an above-average contribution.

Coordinates and contributions of active categories

Category label	Coordinate		Contribution	
	Axis 1	Axis 2	Axis 1	Axis 2
HE1. We have gone too far in advancing equality in our country				
HE1.EQRights+	– 0.486	0.786	–	1.431
HE1.EQRights –	– 0.917	0.614	2.826	1.982
HE1.EQRights++	0.876	0.727	1.970	2.125
HE1.EQRights––	0.131	– 0.430	–	3.426
HE2. Society would benefit from a more equal distribution of material wealth				
HE2.EQGoods+	– 0.822	– 0.031	3.402	-
HE2.EQGoods++	0.364	0.164	1.561	-
HE2.EQGoods––	0.381	– 0.996	–	2.297
HE3. Most problems in society come from abandoning the traditional family model: a breadwinning husband and a stay-at-home wife				
HE3.TradFam–	-1.167	0.916	3.365	3.238
HE3.TradFam++	0.665	0.651	1.483	2.225
HE3.TradFam––	0.031	– 0.483	–	4.068
HE4. It seems that criminals and con artists always get away with it, and it's honest citizens who are paying the bills				
HE4.Injustice+	– 0.700	– 0.044	2.369	–
HE4.Injustice++	0.468	0.287	2.231	–
HE4.Injustice––	– 0.021	– 1.196	–	6.405
HE5. Society in general has gone soft and overly feminine				
HE5.FemSoc-	– 0.491	0.699	–	2.639
HE5.FemSoc++	1.277	0.677	3.703	1.626
HE5.FemSoc––	0.017	-0.520	–	4.510
HE6. We live in a society based on discrimination and oppression of women				
HE6.GendDisc+	-0.037	0.868	–	1.747
HE6.GendDisc–	– 0.772	0.618	1.943	1.945
HE6.GendDisc++	1.404	0.872	2.919	1.762
HE6.GendDisc––	0.038	– 0.352	–	2.529
HE7. Parents should teach boys to be more sensitive and less rough and aggressive				
HE7.BoysSoft+	– 0.595	0.278	1.711	–
HE7.BoysSoft–	– 0.718	0.237	1.835	–
HE7.BoysSoft++	0.803	0.307	3.437	–
HE7.BoysSoft––	0.208	– 0.691	–	4.133
HE8. Discrimination against minorities is a major problem in our society				
HE8.Minority–	– 0.683	0.469	1.751	–
HE8.Minority++	1.130	0.695	3.782	2.238
HE8.Minority––	– 0.015	– 0.420	–	2.921

The end of table

Category label	Coordinate		Contribution	
	Axis 1	Axis 2	Axis 1	Axis 2
HE9. We need to close the gap between the rich and the poor, as well as between people of different national backgrounds and sexes				
HE9.MakeEqual+	– 0.763	– 0.215	3.221	–
HE9.MakeEqual++	0.440	0.336	2.010	1.827
HE9.MakeEqual––	0.288	– 0.874	–	2.597
IC1. The government has to limit the choices people can make in the fight for a common cause				
IC1.RestrChoice++	0.979	0.297	2.933	–
IC1.RestrChoice––	0.063	– 0.319	–	1.693
IC2. Individual income is the strongest motivation for hard work				
IC2.IndIncome+	– 0.655	– 0.061	2.286	–
IC2.IndIncome––	0.395	– 0.775	–	1.576
IC3. Free markets, rather than governmental programmes, are the best way to provide people with everything they need				
IC3.FreeMark–	– 0.808	0.093	2.645	–
IC3.FreeMark++	0.654	0.382	2.492	–
IC3.FreeMark––	0.184	– 0.440	–	1.915
IC4. People should be able to count on state benefits when in need				
IC4.StSupport+	– 1.486	0.138	3.051	–
IC5. The state is trying to too much for too many people				
IC5.TooMuch+	– 0.514	0.883	–	3.130
IC5.TooMuch-	– 0.975	0.193	3.003	–
IC5.TooMuch++	0.695	0.828	–	1.905
IC5.TooMuch––	0.269	– 0.370	–	2.516
IC6. We should let people take care of themselves				
IC6.LetPeople-	– 0.838	0.029	2.359	–
IC6.LetPeople++	0.690	0.023	2.911	–
IC6.LetPeople––	0.159	– 0.563	–	2.004
IC7. Government regulations are almost always a waste of time and money				
IC7.GovWaste+	– 0.847	0.413	2.123	–
IC7.GovWaste++	0.693	0.353	3.555	1.441
IC7.GovWaste––	– 0.022	– 0.615	–	2.457
IC8. Society has to satisfy the basic needs of all its citizens				
IC8.SatisfAll+	– 0.748	0.126	2.434	–
IC8.SatisfAll++	0.591	0.196	3.209	–
IC8.SatisfAll--	– 0.010	– 1.147	–	4.677
IC9. The state has to stop dictating to people				
IC9.StopDict+	– 0.673	– 0.014	2.103	–

The space of cultural beliefs formed by two axes creates two major oppositions — moderate/categorical along the horizontal axis and anti-regulationism/etatism along the vertical one (fig. 1). The left part of the space contains

variables associated with moderate agreement and disagreement with cultural beliefs; the right one, variables describing extreme agreement or disagreement. The top part of the space is occupied by variables associated with strong support for egalitarian and individualist attitudes and, to a much lesser degree, communitarian and hierarchist beliefs. This pole signifies disapproval of vertical structures and primarily anti-regulationist attitudes. The bottom part of the space contains variables divorced from egalitarian and individualist attitudes. If some other auxiliary variables are taken into account, this pole can be called statist.

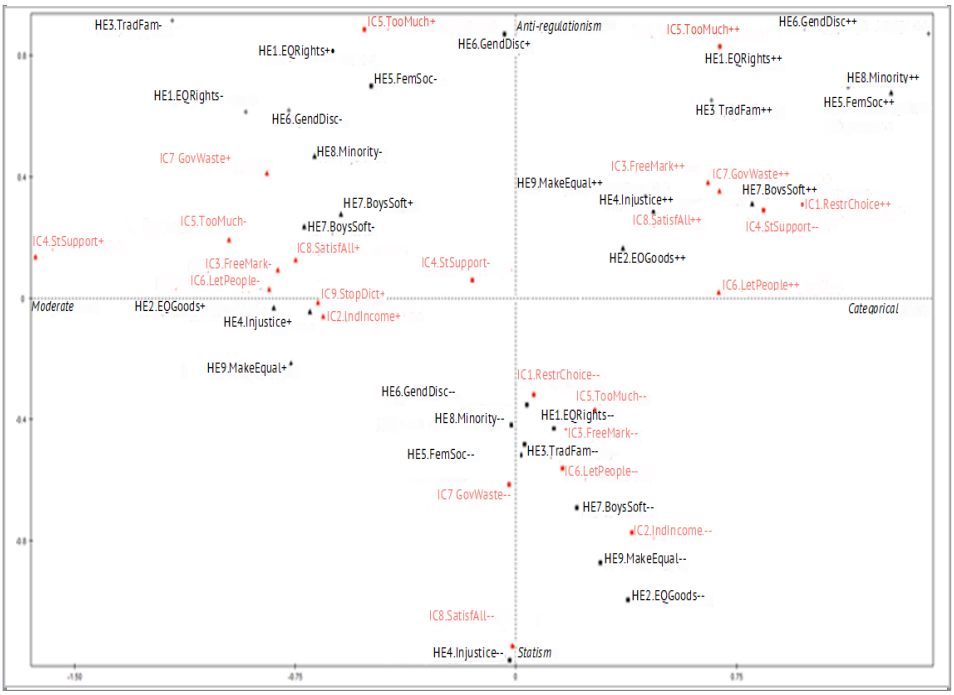

Fig. 1. The space of active variables (cultural belief) distribution

Analysis of auxiliary variables and their connection to categorical variables shows the following.

1. The categorical anti-regulationism quadrant (top right) is associated with distrust of official institutions and confidence in weak horizontal ties (friendship), sceptical attitudes to the media (including private ones), and reliance on information from friends and private companies. The most effective measures to inform this group about environmental risks are recruiting expert ecologists, raising awareness of production processes, and holding roundtables with com-

munity leaders. The group is well informed about the risk of mine development. Despite distrusting the 'system', beliefs found in this quadrant correlate with the previous experience of civic engagement and communication with authorities. The quadrant has the gravest concerns over the environmental risks of mine development — growing social unrest, a reduction in the inbound tourist flow, and houses collapsing into sinkholes. Beliefs in this quadrant are connected with a negative outlook on the environmental situation in the region and the conviction that the environmental risks are very high. At the same time, the top-right quadrant group shares the individualist belief that economic gains are sometimes worth damage to the environment.

2. The categorical etatism quadrant (bottom right) is associated with distrust of the activists and the mining company, on the one hand, and reliance on family and fellow members of the organisation. These people believe information from human rights groups or the Ministry of Emergency Situations while being suspicious of information from activists, friends, and acquaintances. The most effective measures to stop rumours in this quadrant is stricter state control over the company. Information is considered reliable when it comes from colleagues, the media, or (less often) news portals. The activists and TV fail to win trust in the quadrant. People in this group score the highest on self-evaluation of awareness of the mine development. Yet, they do not estimate any of the risks as serious. Having a negative outlook on the environmental situation in the region, they think that the environmental risks of mine development are rather low. This quadrant is connected with hierarchical beliefs that the state is responsible for dealing with environmental issues. If the situation deteriorates, this group will expect action from the authorities.

3. The moderate etatism quadrant (bottom left) has great trust in the authorities, environmental non-profits, the mining company, and social networks. But it is sceptical about the media and information coming from relatives. The most reliable information is that from the state media; less reliable, from the authorities and the private media. This quadrant is very unlikely to take part in rallies now or in the future. They trust information about the mine in Nivenskoe and the related risks as long as it comes from the company, social media, environmental non-profits, or the authorities and do not trust news coming from relatives. This quadrant estimates overall environmental risks as moderately high but does not see the mine development in Nivenskoe as a potential threat.

4. Finally, the moderate anti-regulationism quadrant (top left) is associated with great trust in relatives, colleagues, social media, and environmental non-profits. People in this group disapprove of stricter state control over the company as a means to defuse tensions and believe in mining site tours and per-

sonal experience. They do not view environmental risks as serious, call the current situation 'favourable', and consider protest ineffective. They think that their awareness of mine development risks is limited, tend to blame potential risks on the company, and, unlike the categorical quadrant, do not deem it possible to sacrifice nature for economic gains. Overall, their beliefs are communitarian rather than individualistic.

To determine groups of respondents sharing similar characteristics, I carried out cluster analysis to place each respondent relative to active categories. Five clusters were identified (fig. 2) that have a unique combination of cultural beliefs and attitudes to risk.

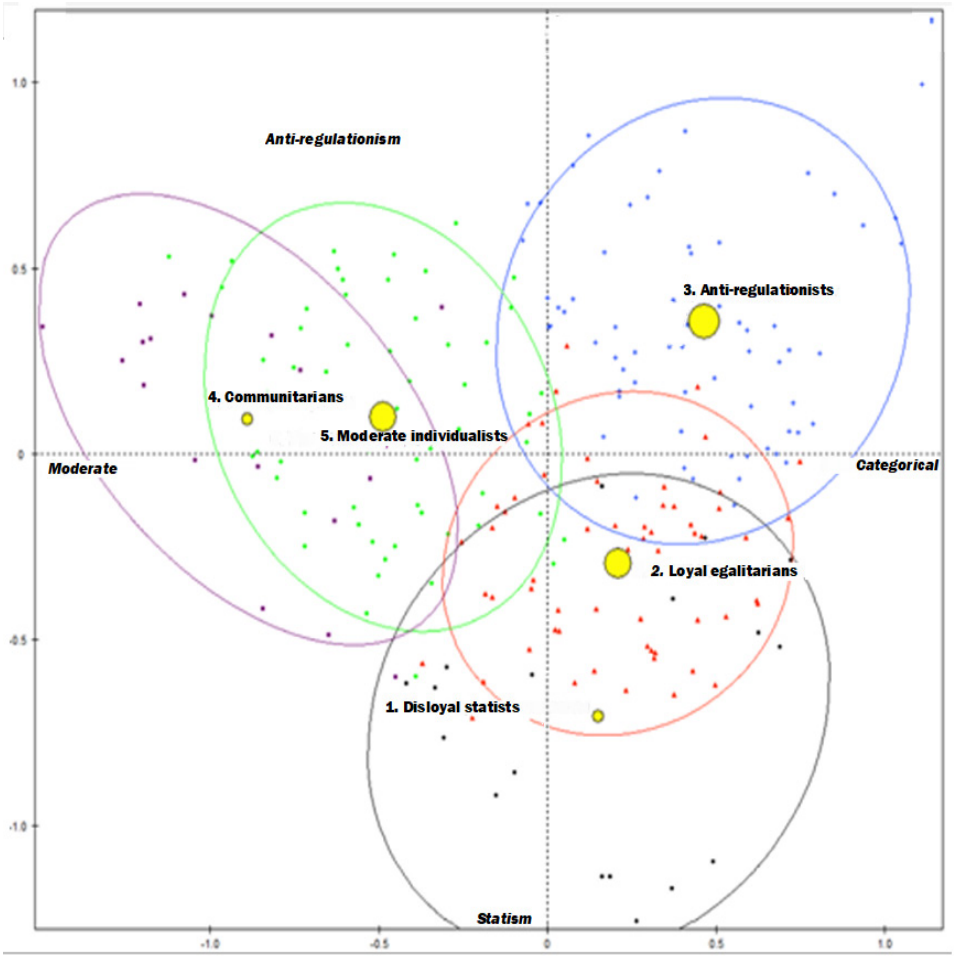

Fig. 2. Clustering of respondents according to cultural beliefs

Cluster 1 (8.5%). Disloyal statists. This cluster is located in the bottom right corner. It is associated with negative attitudes to egalitarianism. Members of this group are strongly against the idea that the state must meet the needs of everyone

and evenly distribute wealth. They do not believe that the state is unfair or that there is a need to fight economic and gender inequality. The statement that the strongest motivation for work is individual profit is shared with some reservations. Yet, people in this group think that governmental programmes, rather than markets, are the key to public prosperity. This cluster has counter-egalitarian and counter-communitarian rather than hierarchist attitudes. Its beliefs can be defined as individualised etatism — while acknowledging the dominant role of the state and considering the current order of things as legitimate, they are not completely loyal to the group. Remarkably, this cluster prefers to learn about environmental threats from the state media and see strict state control over production as the most effective mechanism to regulate risk-related tensions.

Cluster 2 (26.9%). Loyal egalitarians. Although located in the bottom right quadrant, it is closer to the centre than Cluster 1. The most prominent beliefs in this cluster relate to group cohesiveness and moderate support for vertical structures. Although members of the group are not willing to vest in the state the right to restrict personal choices in the fight for a common cause, they approve of current support for various social groups and oppose the 'social Darwinist' that people should take care of themselves. This group pays little attention to the anti-discrimination agenda. Its members neither believe that society has grown soft and feminine nor blame all perils on the abandonment of the traditional family model. Still, they do not think that boys should be taught to be more sensitive or that women are unfairly discriminated against in society.

Cluster 2 approves of the idea that everyone has the right to state benefits when in need and that society would profit from an even distribution of wealth. Members of this cluster value the group over vertical structures — this attitude is characteristic of moderate paternalism. Well informed about the mine development, this group tends to trust environmental non-profits rather than the media. Its essential feature is a genuine unwillingness to sacrifice the environment for higher living standards. This attitude is typical of the egalitarian culture.

Cluster 3 (29.5%). Anti-regulationists. This group has egalitarian and individualist attitudes: antipathy to vertical structures and social prescriptions, including those by the state. Members of this group acknowledge the problem of discrimination towards minorities and the need to fight economic and gender inequality. They support the idea of teaching boys to be more sensitive and believe in markets more than state programmes, which they consider 'a waste of time and money'. Although this group is neither 'right' nor 'left', its anti-regulationist attitude is obvious. This attitude is reflected in civic engagement, full awareness of mine development, distrust of all the media (both state and private), and estimating regional environmental risks as high. The greatest concern in Cluster 3 is houses collapsing into a sinkhole.

Cluster 4 (8.6%). Communitarians. This cluster is associated with communitarian attitudes: approval of state support for various groups at risk, favouring state programmes over markets as a tool to achieve public prosperity, and the rejection of financial gain as personal motivation. The attitudes of this group have a major egalitarian element which corresponds to the demand for social justice. Thus, members of cluster 4 combine paternalistic beliefs with group cohesiveness. Other important features are distrust of the activists and a high proportion of younger people. This group has little interest in the risk agenda.

Cluster 5 (27%). Moderate individualists. Although members of this group do not problematise discrimination towards minorities, they think that the state must ensure greater equality (primarily, as regards the distribution of wealth). At the same time, the state should let citizens take care of themselves rather than exert pressure on them. Partly sharing individualistic attitudes, this group acknowledges the central role of the state in ensuring order and attaining social justice.

This group does not stand out for its civic engagement, but it is not willing to sacrifice the environment for the economic benefits of the project. This group trusts the authorities most of all, but also pays attention to what human rights organisations and the company have to say. It is likely to look for information in the state media, whereas it does not consider friends as a reliable source of information.

Conclusions

The findings of this study are of both methodological and practical nature.

Methodologically, the obtained space of categorical variables does not completely coincide with the grid/group model either in its classical version or in the form of cultural cognition theory. This inconsistency may be explained by deficiencies of the Russian translation of the scales, the need for their further adaptation and validation, or the specific features of local communities.

Still, this experience should not be considered as a failure: the use of scales in combination with multiple correspondence analysis made it possible to build a well-structured space based on the obtained categories, establish connections between active and auxiliary categorical variables, and identify in the local community clusters that have stable distinctive properties of different cultural types. This leads one to conclude that the tests methodology (particularly, the scales employed in this study) enable reliable categorisation of respondents' cultural beliefs. Yet their correspondence to the types of structural organisation of local communities was beyond the scope of this study.

An important practical implication is the differentiation between cultural types along the categorical/moderate and anti-regulationism/etatism scales. The

second scale combines grid (vertical organisation) and group (horizontal organisation) components found in the original model. These cultural attitudes are not random statements or basic beliefs. They are linked to risk perception and the treatment of social institutions (state, private, and non-profit), communication channels, and the social environment of community members. As I demonstrated in an earlier work, cultural beliefs remain unchanged in group communication [46]. Therefore, the observed risk perception patterns are of crucial importance for devising differentiated risk communication strategies towards different groups within local communities in the context of their economic, institutional, and social situation.

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