Value Frames of Nuclear Technology Acceptance

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PROBLEM

Public acceptance of risky or unpleasant objects is becoming increasingly hard to achieve in any modern society. Especially after TMI, Chernobyl or Fukushima accidents/disasters, public in the majority of developed countries is showing great dislike for NPP and in many countries existing NPP cease to work and plans for the new ones are abandoned. Social acceptability of such facilities remains beyond the control of social, political or expert institutions. This paper draws on the internet survey conducted on different groups of stakeholders asking people about their attitudes to different scenarios of possible futures of nuclear energy usage in Slovenia (1. Phasing out nuclear power, 2. Continuation of the current situation, 3. Increased usage of nuclear energy based on generation 4 reactors), as studied in PLATENSO project. Attitudes toward nuclear energy usage scenarios were confronted with values orientation, perceived influencing factors and stakeholder's groups affiliations. Differences in orientations towards nuclear energy policies are intertwined with differences in orientations towards what is good for a community, society or the world at large. Study represents part of the subjective validation of three scenarios proposed in PLATENSO project.

Method

Participants: 84 stakeholders from NGOs, former local partnerships, governmental administration, education and research, expert groups etc.
Materials: Questionary was prepared for the evaluation of the three scenarios with the help of semantic differential scales, as well as Kahle's value (LOV) and Inglehart's materialism-post-materialism scales and list of factors that could influence decision making about scenarios.
Procedure: An internet survey was conducted in winter 2015/spring 2016 on members of different stakeholders groups.
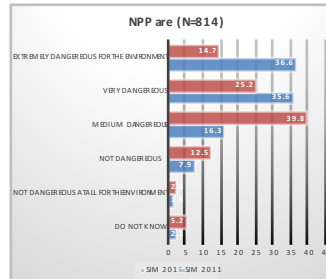
Results and Discussion

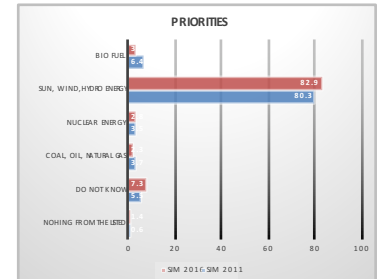FIGURE 1: Attitudes toward NPP in Slovenia in 2011 and 2016

FIGURE 2: Preferences for different energy sources in fulfilling energy needs of Slovenia.

Though attitudes toward NPP change from 2011 till 2016 in favor of NPP, they are still perceived as dangereous. This is also evident from the priorities regarding source of energy participants are holding. It must be mentioned that this are only preliminary results, as opinion poll is not yet completely concluded. Nevertheless, it support choice of Scenario 1 (Phasing out NPP) in greater degree than the others Scenarios. There is a statistically significant difference in Scenario choices of the Members of Nuclear expert association and other participants ($\chi_{(2, 84)}^2$ = 9,516; p=0,009. 14 out of 15 members choose Scenario 2 (6) or Scenario 3 (8). People connected to nuclear are more prone toward supporting NPP either current or a new ones.

TABLE 1. LOV and choice of scenario

VALUES (LOV)	SCENARIO	N	Mean	SD
Sense of Belonging	1	27	6.59	2.062
	2	10	7.10	1.853
	3	30	6.93	1.818
	Total	67	6.82	1.906
Excitement	1	27	4.04	1.891
	2	10	5.20	1.398
	3	29	4.90	2.076
	Total	66	4.59	1.945
Warm Relationships with Others	1	27	7.85	1.634
	2	10	8.10	1.101
	3	30	7.57	1.695
	Total	67	7.76	1.587
Self-fulfillment	1	27	8.04	1.581
	2	10	8.30	.675
	3	30	7.67	1.626
	Total	67	7.91	1.505
Being well Respected	1	27	6.59	1.623
	2	10	6.30	1.252
	3	30	6.37	1.771
	Total	67	6.45	1.626
Fun and Enjoyment of Life	1	27	5.85	2.282
	2	10	5.80	1.549
	3	30	6.07	1.999
	Total	67	5.94	2.037
Security	1	27	7.81	1.777
	2	10	7.90	1.101
	3	30	7.47	1.592
	Total	67	7.67	1.599
Self-Respect	1	27	8.00	1.468
	2	10	8.40	.843
	3	30	7.80	1.518
	Total	67	7.97	1.414
A Sense of Accomplishment	1	27	7.22	1.502
	2	10	7.40	1.174
	3	30	7.23	1.455
	Total	67	7.25	1.418

Surprisingly enough choice of the Scenario Was not significantly correlated neither with LOV, neither with Materialism – Postmaterialism Scales.

Also canonical correlation analysis between values + materialism-postmaterialism scales on one side and assessments of three Scenarios on semantic differential scales did not reveal any significant connection between both groups of variables.

One of the reasons is undoubtedly small number of participants. As study is still in progress – an idea was to conduct it in different PLATENSO countries, but due to the lack of time and rapidly approaching end of the project this was not done – the present results serve more as an orientation than final conclusions.

On the other side, values could be to general to differenciate between various attitudes toward nuclear issues.

TABLE 2. Materialism-Postmaterialism Scale and choice of scenario

MATERIALISM/POSTMATERIALISM	SCENARIO	N	Mean	SD
Maintain Order in the Nation	1	27	5.93	1.920
	2	10	6.50	2.014
	3	30	6.43	2.208
	Total	67	6.24	2.053
Give People more Say in the Decisions of the Government]	1	27	7.11	2.025
	2	10	6.20	1.932
	3	30	6.37	1.884
	Total	67	6.64	1.959
Fight Rising Prices	1	27	5.93	1.979
	2	10	5.80	1.687
	3	30	5.83	1.967
	Total	67	5.87	1.906
Protect Freedom of Speech	1	27	7.85	1.895
	2	10	7.70	1.252
	3	30	7.40	1.610
	Total	67	7.63	1.677
Maintain a High Rate of Economic Growth	1	27	5.22	2.470
	2	10	5.80	2.486
	3	30	5.80	2.188
	Total	67	5.57	2.330
Make Sure the Country has Strong Defense Forces	1	27	2.74	2.011
	2	10	4.20	2.300
	3	30	3.97	2.371
	Total	67	3.51	2.279
Give People more Say in how Things are Decided at Work and in their Community	1	27	7.30	2.035
	2	10	7.50	1.080
	3	30	6.50	2.047
	Total	67	6.97	1.954
Try to Make our Cities and Countryside more Beautiful	1	27	6.63	2.221
	2	10	6.90	1.287
	3	30	6.37	2.059
	Total	67	6.55	2.017
Maintain a Stable Economy	1	27	6.33	2.337
	2	10	6.70	2.406
	3	30	6.87	2.145
	Total	67	6.63	2.242
Fight against Crime	1	27	6.67	2.353
	2	10	6.70	2.627
	3	30	6.93	2.016
	Total	67	6.79	2.219
Move toward a Friendlier, less Impersonal Society	1	27	8.15	1.537
	2	10	8.40	.699
	3	30	7.67	1.422
	Total	67	7.97	1.403
Move toward a Society where Ideas Count more than Money	1	27	8.19	1.495
	2	10	8.40	.966
	3	30	8.03	1.377
	Total	67	8.15	1.362

Nevertheless, present authors believe that norms and values should be considered in dealing with nuclear issues. Adequate choice of scales and participants could give new insights into the People's choices regarding nuclear. At the same time it must be understood that we are dealing with highly dynamic and changeable situation influenced by different factors. Public control and participation – that is empowerment of the people -is perhaps one of the most influential.