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Summary
Attitudes towards Hydroelectric Power Plants: An Evaluation in terms of System Justification, Locus of Control, and Attributional Complexity

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Turkey is a steadily developing country which is experiencing ever increasing energy demand as a consequence of rapid population growth, growing cities and industrialization. In order to meet this increasing demand, government authorities have begun seeking out new energy resources, and have focused primarily on hydroelectric power plants (HEPPs). In the process, this has resulted in a privatization of water resource enterprises. According to Marım and Güler (2009), the complete privatization of State Water Supply Administration (SWSA) operated water resources has resulted in nationwide problems such as the prioritization of personal interest, over public and environmental. In order to solve this problem, information concerning the attitudes of the people which elicit action by the authorities, and factors affecting those attitudes, are understood to be of equal importance to the authorities' own approach to the problems.

The aim of this study is to demonstrate the relationships between attitudes toward HEPPs, and system justification, locus of control, and attributional complexity, all of which are thought to influence those attitudes.

First, it is argued that individuals with high levels of system justification tend to disregard the disadvantages and injustices of an existing system. This would include disregarding environmental issues and accepting the existing regulations exactly as they are (Jost et al., 2011, Phelan & Rudman, 2011). Thus, decreases in system justification should correlate with decreases in negative attitudes toward HEPPs.

Second, it is argued that as levels of system justification increase, an increase in beliefs of limited control over the system is witnessed (Gürşimşek & Göregenli, 2005); this decreases the likelihood of preventative action regarding environmental problems (Van Haaften & Van de Vijver, 1999). Thus, increases in internal locus of control should correlate with more critical appraisal of and greater negative attitudes toward HEPPs.

Third, low levels of attributional complexity, as it relates to levels of system justification, refers to the greater cognitive ease involved with the acceptance and approval of a system rather than the questioning of it (Greenwald, 1980). Thus, it is argued that increases in the level of complexity of a subject should correlate with an increase in the level of trust placed in the authorities responsible (Shepherd & Kay, 2011). However, this contrasts with individuals who report high levels of attributional complexity, prefer complex comprehensive explanations, and approach events skeptically. In these cases, it is argued that high levels of attributional complexity (Fletcher, Reeder, & Bull, 1990; Joireman, 2004) lead to approaching environmental regulations with critical skepticism, and possessing subsequently greater negative attitudes toward HEPPs.

Consequently, it is expected that the approving attitudes towards HEPPs will be positively related to system justification, and negatively related to internal locus of control and attribution complexity. Consistent with these relations, the study will test the hypothesis that "system justification, locus of control and attribution complexity variables will significantly predict attitudes towards HEPPs". When testing this hypothesis, variables of gender and political orientation will be controlled in the regression analysis that will be performed to better understand the correlations between research variables and attitudes towards HEPPs. The reason for this is that many of the previous research findings (Allen, Castono & Allen, 2007; Dunlop & Van Liere, 1984; Erder, 1999; Feygina, Jost, & Goldsmith, 2009) show that women and individuals with left-winged political orientation are more environmentalist than men and right-winged individuals, respectively. For example, Inglehart (1985) points out that one of the most important conflicts between right and left-winged individuals is environmental issues, while Erder (1999) points out that woman in Turkey are more sensitive to environmental issues than men.

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Method

Participants

The study sample consisted of a total 256 participants; 137 women (53.7%), 118 men (46.3%), and 1 unspecified gender, all of who were aware of HEPPs which have been completed or are under construction in Turkey. The age range of participants was 16-70 and the average age was 26.18 (SD = 8.94).

Measures

Demographic Information Scale. The scale contained questions which were aimed at ascertaining the demographic characteristics of the participants. The scale also included questions concerned with the participants' political orientation on a 9-point scale ranging from (1) "right-winged orientation" to (9) "left-winged orientation".

System Justification Scale. Developed by Kay and Jost (2003), this scale was adapted to the Turkish language by Yıldırım (2010). There are 8 items on the scale and high scores indicate a higher level of system justification. The Cronbach's alpha internal consistency reliability coefficient calculated for the Turkish adaptation of the scale was .67 (Yıldırım, 2010) and .76 (Karaçay, 2011). The Cronbach's alpha internal consistency reliability coefficient calculated for the scale in this study is .71.

Rotter's Internal-External Locus of Control Scale (the I-E scale). The Internal-External Locus of Control Scale developed by Rotter (1966) was adapted to Turkish by Dağ (1991). The scale consists of 29 items. Six items on the scale are fabricated so as to disguise the purpose of the scale. In this study, increasing scores indicate an increase in a subject's internal control belief. The Cronbach's alpha internal consistency reliability coefficient of the scale is .70. The Cronbach's alpha internal consistency reliability coefficient calculated for this scale in this study is .71.

Attributional Complexity Scale. The Attributional Complexity Scale developed by Fletcher et al. (1986) was used to determine the level of attributional complexity of the participants. The scale was adapted to Turkish by Paker (2004). The scale, which includes seven subscales, consists of 28 items. The total score from the scale was used in this study. Increasing scores indicate higher attributional complexity. The Cronbach's alpha internal consistency reliability coefficient of the Turkish version of the scale was found to vary between .86 and .91 in different applications in the same study (Paker, 2004). The Cronbach's alpha internal consistency reliability coefficient calculated for the entire scale in this study is .86.

Attitudes towards Hydroelectric Power Plants Scale. In the present study, in order to measure the attitudes toward HEPPs, a 19-item scale, developed by Andersen and Midttun (1985), was translated to Turkish. However, in the present study, a new scale was prepared adapting 10 items from this 19-item scale that assess the attitudes toward HEPPs. The scale was a Likert scale and responses on each item ranged from (1) "strongly disagree" to (7) "strongly agree", with high mean scores representing "negative" attitudes regarding the construction of HEPPs. For this study, it was necessary to reverse code items 1, 3, 4, 6, 9 and 10. The Cronbach's alpha internal consistency reliability coefficient of the scale was .82. In order to obtain information about the criterion validity of the scale, the correlations between this scale and other variables were assessed. The scale showed significant correlations with total scores of system justification (-.39), locus of control (.19) and attributional complexity (.17) in the expected direction.

Procedure

A number of questionnaires were distributed to the participants by hand and the rest were distributed online. In both cases, the participants were required to give their informed consent, and were assured they could withdraw from the study if they felt discomfort for any reason. Participants were also informed about the approximate duration (10-15 min.) prior to the study.

Results

To begin, Pearson's correlation analyses were performed to determine the correlations between the variables. Following this, a hierarchical regression analysis was performed to determine the variables that predicted negative attitudes towards HEPPs.

Correlation Analyses

Correlation results revealed that the attitudes toward HEPPs were significantly and negatively correlated with system justification, and significantly and positively correlated with political orientation, internal locus of control, and attributional complexity. In other words, as the level of system justification increases, the negative attitudes toward HEPPs decrease, while the negative attitudes toward HEPPs increase as the level of internal locus of control and the level of attributional complexity increase.

Correlations between the other variables indicated that system justification is significantly related to political orientation and attributional complexity in a negative direction. This finding indicates that the level of system justification decreases as left-winged political orientation and attributional complexity increase. Other correlations between variables were not significant.

Regression Analyses

The results of the hierarchical multiple regression analyses indicated that political orientation predicted the attitudes toward the HEPPs positively and accounted for 14% of the variance in the dependent variable ($F_{2\text{-}224}$ = 18.10, p = .00). According to this result, the participants' negative attitudes toward HEPPs increase as the level of left-winged political orientation adoption increases.

In the second stage, system justification predicted the attitudes toward HEPPs in a negative direction and accounted for 8% of the total variance ($\Delta F_{1\text{-}223}$ = 21.54, p = .00). This result indicated that as the level of system justification in the participant increases, their negative attitudes toward HEPPs decrease. In the third stage, the inclusion of locus of control and attributional complexity variable brought the total variance explained up to 24% ($F_{5\text{-}221}$ = 41.10, p = .00). When the specific effects of these two variables were examined, it was understood that attitudes toward HEPPs are positively and significantly predicted only by locus of control. In other words, as the level of internal locus of control increases, negative attitudes toward HEPPs also increase.

Discussion

First, there was a negative correlation between the attitudes toward HEPPs and the system justification variables. In other words, as system justification increases, negative attitudes toward HEPPs decreases; these individuals have found reasons to justify and are more satisfied with the current existing system, and this finding was supported by earlier studies (e.g., Jost et al., 2003; Jost et al., 2007). Also, these individuals appear to have similar tendencies regarding environmental problems. For example, Feygine, Jost and Goldsmith's (2010) study on the awareness of environmental problems within the framework of system justification, and political orientations, indicated toward a negative relationship between the awareness of environmental problems and system justification; this is consistent with the results of our own research.

Negative attitudes toward HEPPs are positively correlated with internal locus of control; as levels internal locus of control increase, negative attitudes toward HEPPs also increase. Individuals with an internal locus of control tend to believe that their actions will bring about change (Huebner & Lipsey, 1981,; Kollmuss & Agyeman, 2002; McCarty & Shrum, 2001), and for this reason, are more likely to exhibit negative attitudes towards HEPPs, which are supported by the political system but known to have negative consequences. This correlation is also consistent with the results of Gambro and Switzky's (1992) study.

In regards to correlations between attributional complexity and attitudes toward HEPPs, results indicated that as participants' level of attributional complexity increases, their negative attitudes toward HEPPs also increase. Arslan (2005) states that individuals with low levels of attributional complexity tend to approach problems more negatively, while those with high levels are open-minded and have wide area of interests. The likelihood of those individuals with high levels making the right judgment is higher than in others (Fast, Reimer, & Funder, 2007; Fletcher, Reeder, & Bull, 1990). It is also arguably clear that those who are more skeptical and questioning will have more negative attitudes toward HEPPs.

Regression analyses results revealed that political orientation, taken as an analytical control variable, significantly and positively predicted attitudes toward HEPPs. In this study, low levels of political orientation indicated greater right-wing ideologies, while high levels indicated greater left-wing ideologies. Therefore, our results indicated that as political orientation levels increased, or the greater the participant's left-wing ideologies were, negative attitudes toward HEPPs also increased. Earlier studies (e.g., Inglehart, 1985; Peterson, Doty, & Winter, 1993; Rubinstein, 1997; Schultz & Stone, 1994) have also found that left-wing individuals are more sensitive to environmental problems than right-wing individuals. This difference is further supported by a large number of findings (e.g., Allen, Castono, & Allen, 2007; Dunlop & Van Liere, 1984; Feygina, Jost, & Goldsmith, 2009) that reveal conservative right-wing individuals do not adequately support environmentalist attitudes, whereas left-wing individuals are more aware and sensitive to the environment. These earlier findings appear to be consistent with the finding of this study, in that as the political orientation of participants goes from right-wing to left-wing, negative attitudes toward HEPPs increase.

It was understood that system justification predicts attitudes towards HEPPs in the negative direction. According to this result, as the level of system justification of the participants increases, their negative attitudes towards HEPPs decrease. As discussed previously, there is a negative correlation between system justification and sensitivity to environmental problems. For example, the results indicated by Feinberg and Willer (2011) in their studies of people's attitudes toward global warming show that activist attitudes towards the environment decreases as the level of system justification increases. This information may help explain the reason why system justification predicts the negative attitudes towards the HEPPs.

Another variable that was exerted to predict attitudes towards HEPPs is the internal locus of control. As the level of participants' internal locus of control increases, their negative attitudes towards HEPPs also increase.

As discussed previously, this finding is easy to understand when it is considered that the likelihood of internal locus of control oriented individuals having negative attitudes toward HEPPs is higher than that of external locus of control oriented individuals. Similarly, the study by Van Haaften and Van de Vijver (1999) suggests that as the individuals' tendency for external locus of control orientation increases, the activist attitudes towards the environment decrease. Fielding and Head (2012) found that there is a positive relationship between internal locus of control and environmental sensitivity.

Attributional complexity, however, does not predict attitudes towards HEPPs, although there is a significant relationship between them (as the level of attributional complexity increases, negative attitudes towards HEPPs also increases). This is thought to be due to the fact that the relationship between the two variables is not strong enough. Some of the sub-scales of the scale used to measure the attributional complexity variable having low reliability may also affect the result by reflecting on the measures taken for this variable. Nevertheless, it should not be overlooked that the Cronbach's alpha internal reliability coefficient, which is calculated for the total scale and the total scores obtained from the scale in the research, is quite high (.86).