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Ivan Dimov Ivanov, M.D.

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Christopher K Vanderpool
Major professor

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THE ENVIRONMENTAL WORLDVIEW OF THE BULGARIANS AND ITS' SOCIAL BASE

By

Ivan Dimov Ivanov, M.D.

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ABSTRACT

THE ENVIRONMENTAL WORLDVIEW OF THE BULGARIANS AND ITS SOCIAL BASE

By

Ivan Dimov Ivanov, M.D.

This research studied the extent of penetration of the modern ecological ideas (the New Environmental Paradigm) in the Bulgarian society and their association with certain socio-demographic characteristics. The study utilized data from a national survey of 1000 adult Bulgarians. The data were analyzed using frequency distribution, regression and post-hoc contrasts.

The results show that that Bulgarians are not complete holders of the New Environmental Paradigm. They respect nature, although they do not see it as limit to economic growth and they still hold some of the old technocratic values, such as the belief in science and technology. They would support environmental actions but not at the expense of opportunities to raise their living standards through technological and economic development. People who would be most likely to hold eco-centric worldviews would be highly educated persons, intellectuals, urban residents, and not politically active.

To Mom and Dad,

To Violetta

and

To P.Gregg

For all your love, faith and support.

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1. INTRODUCTION

We are what we think.
All that we are arises with our thoughts.
With our thoughts we make the world.
-Buddha

In the late 1980s, many countries from the former Soviet block were environmental disaster areas. The paralyzing financial crisis and economic collapse that followed the end of communism in Central and Eastern Europe, has had both positive and negative effects on the progress of environmental cleanup. On the negative side there have been insufficient funds for environmental cleanup and investment in non-polluting efficient technologies. Individuals and institutions have diverted their attention from environmental to economic concerns. On the other side the dirtiest industries have shut down or at least curtailed their operations because of the economic collapse. (Yarnal, 1995)

Currently, Bulgaria is undergoing transition from central planned to market economy, from totalitarian dictatorship to democratic society. This process is associated with deep changes in politics, social life and cultural values and adopting Western values and beliefs. The questions of the relationship between humans and nature

become important when they are contrasted to the attempts to achieve economic growth and equalizing living standards with those of the Western industrial democracies.

As many other Central and European Countries, Bulgaria is in a process of accession to the European Union (EU). This accession requires not only a sharing of common European law and market, but also an adherence to common European values. The EU places the clean and harmonious environment as one of the major conditions in joining the union and emphasizes the need to have the environment as a priority over economic development.

Therefore this study of the attitudes of Bulgarians toward the environment was undertaken to investigate what is the social paradigm in Bulgaria in terms of the environment and to what extent have modern ecological ideas penetrated and diffused throughout the populace.

THEORETICAL FRAMEWORK

Environmental Paradigm

The social paradigm is an interwoven set of dominant values and beliefs that are held in a society. According to Olsen et al., a social paradigm is "a mental lens through which people view the world and that enables them to understand what they see"(1992, p.). A social paradigm defines "what *is* and what *should be* in social life". The paradigm is itself a part of culture or sub-culture. However, when a considerable number of people, called "communicative community" by Olsen et at. (1992), share a set of social attitudes, this set becomes a paradigm.

There are arguments that the ecological problems of Central and Eastern Europe stem in large part from values of the former communist regimes that were based on Marxist ideology. The former communist party leaders have constantly emphasized beliefs in abundance and progress, devotion to growth and prosperity, faith in science and technology, and governmental planning and strong control over the economy. Such a constellation of values is very similar to what the sociologists in the Western countries call the Dominant Social Paradigm (DSP). Catton and Dunlap describe the following main attributes of the Western DSP:

> "(1) People are fundamentally different from all other creatures on earth over which they have domination. (2)

> People are masters of their destiny; they can choose their goals and learn to do whatever is necessary to achieve them. (3) The world is vast and thus provides unlimited opportunities for humans. (4) The history of humanity is one of progress; for every problem there is a solution, and thus progress need never cease." (1980, p.17)

According to Pirages and Ehrilich (1978), DSP constitutes a worldview through which individuals interpret the meaning of the external world. It is a mental image of social reality that guides expectations in a society. They further argue that DSP is anti-ecological and, in fact, produces an ecological crisis that requires society to change dramatically its relationship with the environment; if an ecological catastrophe is to be avoided.

New ideas are emerging that directly challenge the DSP (Buttel 1987; Cotgrove 1982; Dunlap and van Liere 1978, 1984; Milbrath 1984, 1989; Meadows et al. 1972). These new ideas emphasize the inevitability of "limits to growth", the necessity of achieving sustainable development, the importance of preserving the "balance of nature" and the need to reject the anthropocentric notion that humans are created to rule over nature and make use of it. According to Dunlap and Van Lierre (1978), these new ideas are best captured by the "spaceship earth" metaphor. They term this new worldview the "New Environmental Paradigm" (NEP).

Very little work on environmental beliefs and values has been systematically conducted in the countries from

Central and Eastern Europe (CEE) which are undergoing economic and social transition to market economy. Gooch (1995) argues that there is similarity in the political culture of Russia and of the Western industrial democracies. Zeigler (1987) includes the maximization of economic growth and a belief in science and technology as part of the Russian DSP. He notes similarities in the Western and Russian "cavalier attitude" toward the limits of their natural environments". To Gooch (1995) the belief that "the world is endless, and represents a set of resources", and that "the present and future of the TS (Totalitarian System) consists of endless progress" is very similar to the Western DSP. Although he further argues, that there are differences between Western and East European DSPs.

The belief in individualism that is the core of Western DSP has not been a part of the social ideal of CEE countries during the last 50 years. The focus of responsibility has been concentrated on the state, and individualism was considered undesirable. However, when studying support for the ideas contained in NEP in Sweden, Latvia, and Estonia, Gooch (1995) finds no substantial differences between the countries. People in the Baltic States, as well as people in Sweden, are generally supportive of the ideas of balance of nature, limits to growth, eco-centrism, earth like spaceship

concept and are opposed to modifying the environment, and the use of nature.

Social Base of Environmental Concern

The social base of environmental concern was the subject of many studies. In examining the trends in environmental concern, Jones and Dunlap (1992) tested two hypotheses about possible changes in socio-political correlates of environmental concern. According to them, the 'broadening base' hypothesis predicts that environmental concern will "diffuse throughout the populace, resulting in a broader base of support for environmental protection". For the 'economic contingency' hypothesis, when economic conditions get worse, people who are economically deprived will withdraw support for environmental protection. Jones and Dunlap (1992) also found no clear support for either of the hypotheses. What they found is that younger adults, the well-educated, political liberals, Democrats, and those employed outside of primary industries, will be consistently more supportive of environmental protection than their respective counterparts.

Age

The 'age' hypothesis (Van Lierre and Dunlap,1980) assumes that younger people tend to be more concerned about the environment than older people. The explanation is that

younger people are less integrated into the dominant social order, and since environmental solutions are often viewed as threatening the existing social order, and, therefore requiring substantial changes in values, behaviors and institutions, it is logical to expect, the young to accept pro-environmental ideologies more readily than their elders. Another explanation of the age hypothesis is offered by Manheim's theory of generations. The theory suggests that "important historical events occurring at the crucial adolescent and young adulthood phase of the life cycle can permanently affect a cohort throughout its existence"(in Van Liere and Dunlap 1980, p.183). Therefore, the environmental movement as part of the human rights movements in the 60's in Western countries, and as part of the democratic political movements against the totalitarian regimes in CEE countries in the 80's would have affected more the younger generations.

Social Class

According to the 'social class' hypothesis (Van Lierre and Dunlap,1980), environmental concern is positively associated with social class as indicated by education, income, and occupational prestige. This hypothesis is based on Maslow (1970) hierarchy of needs theory, and assumes that environmental concern is a luxury which can be indulged in only after basic material needs are satisfied. This idea was

best captured theoretically by Inglehart's postmaterialist value thesis and more generally with the emergence of new social movements literature (Brechin, 1999). The argument is that environmentalism could be found only among the upper middle class and the postmaterialists. Brenchin, however argues that this approach is too simple, that environmentalism can not be explained only by a the objective problems faced by citizens in the poor countries, and the subjective values or a postmaterialist value shift experienced by citizens of the richer countries.

Residence

Buttel and Flinn (1977) emphasized the role of rural values in the emergence of environmental concern. They argue that rural values can be conceived of as pertaining to at least two distinct dimensions of sentiment - agrarianism and ruralism. Agrarianism ascribes the renewed interest in rural life to a lingering nostalgia for independence, self-sufficiency and family farming. Agrarianism is often equated to the back-to-the land movement. An opposite perspective is that of ruralism, which argues that the phenomenon is rather a "back-to-nature" or anti-urban philosophy. Both of these cultural traditions have fed into contemporary ideas about nature and rural life. Agrarianism originates from rural segments of the population while ruralism is of urban origin. Mormont (1990) argues that the countryside has

acquired "urban" roles such as performing ecological functions and providing open spaces, scenic beauty, and other assets. He further argues that this places the countryside "within a framework of relations in which rural actors have little or no involvement"(Mormont, 1990, p.34). To Mormont, the environmental disputes, as conflicts over collective assets, are not specific to urban or to rural areas. Buttel (1992) relates the environmental symbolism of rural places with a cultural connotation that sees rural communities as underprivileged and worthy of assistance.

Urban-rural differences of environmental concern have been thoroughly studied by the sociologists. As a result of this, several theories have been formulated to explain the differences in environmental concern between rural and urban residences. (Trembley and Dunlap, 1978; Van Lierre and Dunlap, 1980; Lowe and Pihhey, 1982)

The 'environmental deprivation' theory relates public concern for environmental problems to actual levels of pollution and degradation. According to this theory, urban residents would be more concerned about the environment because they are exposed to higher levels of environmental problems. Van Lierre and Dunlap (1980) argue that the environmental deprivation is relative rather than absolute, since the lower classes are accustomed to their poor

environmental situation, as they have never experienced anything better.

The theory of 'nature exploitative occupations' suggests another explanation of urban-rural differences in environmental concern. According to this theory the lower level of support for environmental protection in rural areas is rooted in the nature of the occupations found in rural locales. Rural occupations such as farming, mining, and logging are based on the exploitation and consumption of natural resources, and therefore encourage an exploitative attitude towards natural environment. The theory of the impact of occupational dependency on polluting technologies is an extension of the notion of occupational dependence. Morrison et al. (1972) posit that "…those who are most directly, immediately and drastically threatened by the cost of environmental reforms will be those who will first and most strongly resist the reforms" (1972:266)

Another explanation of rural-urban differences in environmental concern centers on 'pro-growth' orientation of small town residents as a direct opposition to the philosophy of the environmental movement. To Van Lierre and Dunlap (1980), it is the growth orientation of rural and small town residents and not the utilitarian orientation of nature exploitative occupations that accounts for the

positive association between size of residence and environmental concern.

Another theory emphasizes the socialization occurring in metropolitan areas. It suggests that since metropolitan environments are man-modified, whereas rural environments represent the work of 'God' or 'Nature', urban residents are more likely to see man's efforts as the proper solution of environmental problems rather than their rural counterparts who think of the environment as natural and God-given. However, recent studies suggest greening of non-metropolitan areas (McBeth and Foster, 1994, Alm and Witt, 1995). Other studies show rural public concern for the effects of economic growth on the environment (McBeth, 1996; Harris and King, 1988). These studies demonstrate the central importance of clean and harmonious environment for rural residents and how they are unwilling to sacrifice environmental quality for economic growth. McBeth (1996) argues that the relative deprivation theory is not anymore valid since non-metropolitan communities also experience high environmental burden. He further argues that rural communities are no longer dominated by resource-based industries, which unravels the principles of the extractive occupation theory.

In studying the level of environmental concern during the oil crisis in the 70's, Marsh and Christenson (1977)

have found a decrease in the support for environmental controls, while support for economic development increased. They argue that concern for the environment is a reflection of an affluent society, which becomes less important with a worsening environmental situation. However, they were unable to establish any relationship between the individual socioeconomic variables and erosion of support. Conversely, McBeth (1996) argues that environmental protection is positively related to the well being of rural communities. To him environmental health equates to economic health.

Political Ideology

Van Lierre and Dunlap (1980) state a political hypothesis for explaining environmental concern. This hypothesis assumes that liberals are more concerned about the environment than the conservatives. Dunlap explains that difference with the opposition of business and industry to environmental reforms, which need also extension of governmental activities and regulations as well as innovative action.

The theory of cognitive mobilization offers another explanation of the possible linkage between political ideology and environmental concern. According to Dalton (1994, 1988), the combination of explosion of education, and technological and information revolution has produced a new

brand of citizen - one that is cognitively mobile. Cognitive mobilization means that citizens increasingly possess the level of political skills and resources necessary to become self-sufficient in politics. Therefore, citizens express more concern about the environment and are more likely to be engaged in environmental actions because they are more interested, informed, and educated about environmental issues.

Postmaterialism offers another explanation of the political ideology - environmentalism linkage. To Kanji and Nevitte (1997), the rising salience of environmental orientations is attributed to a shift in public values. Thus, Inglehart (1990) argues that the values of the Western publics are shifting from the overwhelming emphasis on material well being and physical security (i.e. materialism) toward a greater emphasis on the quality of life (i.e. postmaterialism). One particular aspect of the quality of life, that postmaterialists place a great deal of emphasis on, is the state of the environment. Inglehart therefore argues that postmaterialists are far more likely than materialists to be concerned about the environment and to support the environmental movement.

Kitschelt (1993) attributes environmental sensitivities to a new set of ideological beliefs. A New Left Libertarian ideology has begun to displace the traditional Left. New

Left Libertarians are highly mobilized citizens who accept the important issues on the socialist agenda but reject the traditional socialist paternalist-bureaucratic solutions, such as the centralized state planing and the primacy of the economic growth over intangible social gratifications (Inglehart, 1990). One such 'intangible" social gratification for the New Left Libertarians is the quality of the environment.

Gender

Gender can be associated with environmental concern in different ways. Stern et al. (1993) offer a social-psychological model according to which women hold different beliefs than men about the consequences of environmental conditions. They have found empirical evidence that gender differences in environmentalism are the result of gender differences in beliefs about the effects of environmental problems. Women are more accepting than men of messages that link environmental conditions to potential harm to themselves, others, and other species, or the biosphere. Stern relates these arguments with the argument of the feminist theory "that women tend to see a world of inherent interconnections, whereas men tend to see a world of clearly separate subjects and objects, with events abstracted from their contexts" (1993:340). Therefore, men may be less

concerned than women about links between the environment and things they value.

Davidson and Freudenburg (1996) have analyzed the research on gender and environmental risk concerns. The accumulated research findings show that women tend to express higher levels of concern toward technology and the environment than do men, but that the tendency is not universal. The differences are particularly clear cut for local environmental problems and for nuclear and other technologies that are often seen as posing risks of contamination. Davidson and Freudenburg have found consistent support for the argument that women tend to express greater concern than do men about the health and safety implications of any given level of technological risk.

The 'parenthood' hypothesis suggests that the presence of children in the household will be positively correlated with environmental concern. On the one hand children are more sensitive to environmental pollution and on the other hand environmental issues are related to such issues as intergenerational equality (Davidson and Fredenburg, 1996).

The 'gender socialization' theory explains the gender differences in environmentalism by the extent to which society is gendered. The proponents of this theory argue that the oppression of women arose from an ascription of

women to the natural realm, whereas men have been credited with creating culture, often in opposition to nature. (Davidson and Freudenburg, 1996)

Religion

There are two main hosts of theoretical thinking about religion and environment. The first is based on the concept of biblical literalism. The focus in this concept is the Genesis 1 injunction for humankind to have dominion over the earth, the Mastery-over-Nature concept. White (1967) was the first who found empirical support for this concept in the negative association between certain elements of Judeo-Christianity and environmental concern. Weiskel (1990) states that all three Abrahamic religions - Judaism, Christianity, and Islam emphasize upon the sense of exemptionalism. In each tradition humans are said to be empowered or authorized by the divine to undertake certain behaviors in the natural world and are promised protection and exemption from natural processes. Kanagy and Nelsen (1995) demonstrate with empirical evidence that those in Judeo-Christian traditions, and in particular religiously conservative individuals in these traditions, are less concerned about environmental issues than other individuals. In addition, they argue that there is a negative association between religiosity and the level of support for the ideas of the new environmental paradigm. In a recent multi-

national survey, Shultz et al. (2000) have also found strong evidence for a negative association between the level biblical literalism and pro-environmental and ecocentric attitudes.

The other trend is the concept of Christian stewardship. Lindeborg (1993) argues that the traditional Judeo-Christian viewpoint that human beings have dominion over the earth carries with it, in today's interpretation, the obligation to provide for a sustained yield of all things society needs to survive and thrive.

RESEACH QUESTIONS

This study has been undertaken to answer the following research questions:

1. What is the degree of support in Bulgaria for the ideas in NEP?

2. To what degree can support for NEP be explained by some socio-demographic characteristics of the Bulgarians such as: residence, age, social class, political views, religion, gender and parenthood?

METHODS AND VARIABLES

Sample

The data for this analysis were drawn from face-to-face interview survey of Bulgarian adults. A multistage cluster probability sample of 1000 adults in the age interval 18-70 years was used. The sample was taken from election lists with balancing between rural and urban areas and different geographical regions, so the whole country was represented in the sample. The quality of the achieved sample was checked against data on the Bulgarian population for age, ethnicity, family status, occupational status and social group, with the sample showing a satisfactory similarity to the general population. Therefore, the results of this survey can be considered representative of the adult population of Bulgaria in the age interval of 18-70 years. Professional interviewers conducted the face-to-face interviews with the respondents in their homes. The interviews were conducted in July 1999.

Measuring Environmental Attitudes

Dunlap and Van Lierre developed in 1978, a 12 item scale consisting of statements reflecting the ideas of the NEP, such as: balance of nature, limits to growth, rejection of human exemptionalism, eco-centrism and possibility of eco-crisis. The scale was improved over time and was used in

many surveys both in the United States and in other countries. The Health of the Planet Survey, done in 1992 by Gallup International in 24 countries around the world, proved the applicability of the NEP scale to different countries and cultures (Dunlap, Gallup Jr. and Gallup 1993).

Environmental attitudes were assessed using the 12 item Likert-type scale, which was applied by Gallup International in the Health of the Planet Survey. Respondents were asked whether they *strongly agreed, agreed, disagreed* or *strongly disagreed* with each item. Replies to items 2, 5, 7, 9, 10 and 11 were reverse-coded so that the higher score reflects pro-environmental attitude. For descriptive purposes, these categories were reduced to agree and disagree.

Initially Dunlap and Van Liere claimed that the scale is unidimensional. Grendstad (1992) supports that claim with factor analyzing (principal components) the scale, and finding out that there is a moderately strong ecological factor running across the items.

However, other researchers who used the NEP scale (Albrecht et al., 1982; Edgell & Nowell, 1989; Geller & Lasley, 1985; Kuhn and Jackson, 1989; Now & Snow, 1990) have argued that the scale consists of three distinct environmental orientations: (1) the balance of nature; (2) limits to growth; and, (3) human domination of nature. Two

of these orientations are rejection of the primitive beliefs that humankind is above and apart from nature, and that progress and growth are natural and good.

In this study, a factor analysis using the Bulgarian data with Maximum Likelihood extraction and Varimax rotation with Keizer normalization, revealed 4 factors with Eigen-values more than 1.00. However, according to the scree-test, the two factor solution would be most meaningful. Seven items (NEP1, NEP2, NEP5, NEP7, NEP8, NEP9, NEP10) loaded to a common factor (explaining 10.1% of the variance) that assesses the ideas that balance of nature is delicate, that technology is a threat to the environment, and that humans are part of nature (balance of nature/anti-technocratism/ rejection of exemptionalism). This factor was named 'nature'. The remaining 5 items (NEP3, NEP4, NEP6, NEP11, NEP12) formed another factor (9.2% of the variance explained) dealing with the ideas that there are limits to growth, that human domination of nature should be rejected and that there is an ecological crisis (limits to growth/ anti-anthropocentrism/eco-crisis). The second factor will be further referred to as 'limits to growth'

To address the second research question listed above, two sub-scales were created by combining individual items loading high on the respective factor.

Cronbach's alpha coefficient is a common method to measure a scale's internal consistency. We found that Cronbach's alpha for the scale NATURE is .3210, which is less consistent, however the coefficient for the scale LIMITS TO GROWTH is .5366, which shows much more internal consistency.

Finally *2 new variables* were created by summing up the scores of the items in each sub-scale. *NATURE* has approximately normal distribution with a slight negative skew (-.546), minimum value 11.00, maximum 28.00, mean 19.97. *LIMITS TO GROWTH* has also normal distribution, slightly negatively skewed (-.167), with minimum value 5.00, maximum 20.00 and mean 13.05.

Socio-demographic characteristics

To explore the extent to which differences in the levels of environmental concern were associated with various social characteristics of the respondents nine independent variables were used:

- *Age* was measured in years.
- *Residence* was scored as:

  1 = village,

  2 = small town,

  3 = big city.

- *Income* was assessed by combining responses to the following questions:

    1. "How often you do without something important in your everyday life?" and

    2. "For what do you have enough money?"

Indirect measure of income was used because asking questions about the exact amount of personal and family income is considered inappropriate in social surveys in Bulgaria.

- *Social status* was assessed through combining scores for education:

    1 = less than elementary;

    2 = elementary;

    3 = professional technical school;

    4 = high school;

    5 =three years post high school;

    6 = university degree)

and social group (according to the classification of the social groups in Bulgaria, Tidjiev et al, 1997):

    1 = blue collar worker in industry,

    2 = blue collar worker in whole sale and crafts,

    3 = farmer or farm worker,

4 = white collar worker in administration,

5 = white collar worker in industry,

6 = private entrepreneur without employees,

7 = private entrepreneur with employees,

8 = technical intelligentsia,

9 = humanitarian intelligentsia.

- *Number of children* below 18 y/o living in the household was coded as:

  0= no children;

  1 = 1 child;

  2 = 2 children,

  3 = 3 children,

  4 = 4 or more children.

- *Political ideology* was coded:

  1 =nationalist,

  2 = christian democrat,

  3 = social democrat,

  4 = liberal, 5 = agrarian,

  6 = green,

  7 = socialist,

  8 = communist.

- *Party affiliation* was dummy coded into 6 dummy variables:

  Bulgarian Business Block (BBB);

  Bulgarian Socialist Party (BSP);

  Movement for Rights and Freedom;

  Euroleft (MRF);

  Union of Democratic Forces (UDF);

  Other Parties.

The people who don't sympathize with any political party were considered the excluded group.

- *Gender* was dummy coded:

  1 = male,

  0 = female.

- R*eligion of the kin* was dummy coded:

  1 = Christian,

  0 = Muslim.

RESULTS AND DISCUSSION

Support for the Ideas of the New Environmental Paradigm

The frequency distribution of the answers for the whole NEP scale is shown on table 1. Of the 12 items measuring the acceptance of the NEP, three clearly failed to receive a pro-environmental choice by the majority of the respondents (see table 1), namely solving problems with technology, natural limits to growth, raising living standards through science and technology. These concepts were underlying the ideology that the society will build up developed communism through increasing the production, and applying more and better science.

The failure of the respondents to give pro-environmental choice to these ideas can be related to still existing communist ideologies among substantial number of Bulgarians.

The other items clearly received pro-environmental choice. Between 80% and 94% agreed that the balance of nature is delicate, that science and technology do as much harm as good, that earth is like a spaceship with only limited room and resources, that plants and animals don't exist to be used by humans, and that technology made world a riskier place to live. Between 57% and 70% of the respondents agreed that humans are not created to rule over

nature, that modifying the environment can cause severe problems, and that there is an ecological crisis. Only 50.4% felt that the Earth can not support more population.

The standard deviation of an attitudinal variable can be used to assess the degree of public consensus on certain attitude (Mertig and Dunlap 1995). The mean scores of the NEP items and their standard deviations are shown on table 1. The highest public consensus exists in terms of the ideas about the delicacy of the balance of nature, the possibility to raise living standards through science and technology and to solve problems through science and technology. Least consensus exists concerning human domination over nature, human intervention in environment, and the evidence of ecological crisis. It should be noted as well that all the items composing the scale LIMITS TO GROWTH show small degrees of public consensus.

Table 1. NEP Sub-scales and factor loading

*Sub-scale NATURE (*balance of *nature/technological threats) 11.2 % of variance, α=.3210*	Pro DSP (%)	Pro NEP (%)	Mean score	Std. Dev.	Factor loading	
					Factor 1	Factor 2
The balance of nature is very delicate and easily upset by human activities	5.3	93.4	3.63	.62	.482	.064
Most problems can be solved by applying more and better technology	88.3	10.3	1.67	.69	-.308	.296
Science and technology do as much harm as good	16.4	82.8	3.21	.82	.491	.055
The earth is like a spaceship with only limited room and resources	10.1	87.6	3.74	.74	.415	.034
Science and technology raise our living standard	93.9	5.2	1.42	.60	-.226	.210
Plants and animals do not exist primarily to be used by humans	18.9	80.2	3.30	.98	.272	.028
Technology has made the world a riskier place to live	18.1	80.8	3.23	.84	.567	.173
Sub-scale LIMITS TO GROWTH (limits to growth/domination/eco-crisis), 8.2 % of variance, α=.5366						
Nature is not a limit for economic growth	71.9	25.5	1.99	.95	.029	.289
Humans were created to rule over the nature	29.2	69.8	3.01	1.03	.042	.355
Modifying the environment for human use seldom causes serious problems	40.9	57.8	2.67	1.00	.073	.433
The so called "ecological crisis" has been greatly exaggerated	32.9	65.1	2.91	1.01	.129	.541
The earth can support a much larger population	50.4	47.1	2.46	.97	.009	.499

Social Base of Environmental Attitudes[1]

The association between the sub-scales NATURE and LIMITS TO GROWTH and the socio-demographic variables was studied, using the bivariate correlations, multiple regression coefficients, and the test of Bonferroni for difference in means. The results are shown on tables 2 and 3.

Residence

Residence was positively associated both with NATURE (r=.106) and with LIMITS TO GROWTH (r=.153). However, these correlations were no more significant when controlling for age, income, social status, number of children, and political ideology. The Bonferroni's[2] test of post-hoc contrasts revealed statistically significant differences between the means of NATURE, namely between villages/small town and villages/big cities. For LIMITS TO GROWTH the significant contrasts are villages/big cities and small towns/big cities.

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[1] All results reported and discussed in this section are statistically significant at least at p=.05

[2] The statistical test of Bonferroni is a post-hoc contrast comparing mean differences between two variables. It allows for controlling for the possibility that the difference may be significant by chance.

Residence was positively associated (Gamma) with 6 of the items in the scale: balance of nature (.159); modifying the environment (.144); earth like spaceship (.095); plants and animals equal to humans (.135); ecological crisis (.183); population growth (.141).

These data suggest that there is different support for the ideas in NEP depending on residence location. People in rural areas and small towns are somewhat less supportive of the ecological and eco-centric approach towards nature and emphasize economic growth. Villages and small towns in Bulgaria currently experience dramatic economic deprivation due to the collapse of the local industry and the transformation of agriculture. Therefore it is not surprising that people in such areas would give economic growth a priority to the environment.

Age

Age was not associated with NATURE, both bivariate and partial regression coefficients are statistically insignificant. For LIMITS TO GROWTH there was a low negative bivariate correlation with age (r= -.091) suggesting that younger people tend to be more supportive of the concepts of limits to growth/anti-anthropocentism/ecocrisis, although this correlation becomes insignificant when controlling for the other socio-demographic variables. Age was slightly

positively correlated with 2 NEP items: raising standards through science and technology (Gamma =. 087) and technology made the world riskier (r=.066), suggesting that older people possibly tend to be more skeptic about the ability to raise our standards through science and technology and see technology as a threat.

However the results for the both sub-scales and for the individual items do not offer a clear support for the age hypothesis.

Social Class

Social status was positively correlated both with NATURE and LIMITS TO GROWTH. The Pearson's correlation coefficients were respectively r=.149 and r=.122. For NATURE the correlation was low moderate and remained significant when controlling for the other socio-demographic variables. However, for LIMITS TO GROWTH, this correlation became insignificant after statistical control. Income was not significantly correlated both with NATURE and LIMITS TO GROWTH.

We can conclude that the effect of class is expressed mainly through education and social group (social status), since income has no effect on these concepts. Education had low positive correlation (Gamma) with 7 of the 12 items in the NEP scales: balance of nature; humans rule over nature;

modifying the environment; earth like spaceship; plants and animals; ecological crisis; population growth. Income was positively correlated only with 1 NEP item: technology made the world riskier (.108)

The results suggest that well-educated people, who belong to the intellectual elite, would be more likely to hold eco-centric views than lower educated people and blue collar workers would.

Religion

For NATURE, neither the Bonferroni test, nor the multiple regression with religion as dummy coded independent variable revealed any meaningful difference between Christians, Muslims and other religions. Although in terms of LIMITS TO GROWTH the Bonferroni test showed that there is significant difference of the means of Christians and Muslims, suggesting that Muslims tend to be more pro-growth than Christians are. This was supported also by the partial regression coefficient for Christians (B=.097).

These data do not give enough support for the Christian stewardship hypothesis. It can not be unambiguously concluded that people from Muslim kin would be more pro-growth. A big part of the Muslim population in Bulgaria live in rural areas and small towns and this pro-growth orientation may be related to residence rather than to

religion. In addition, religiosity for Bulgarians is associated mainly with family traditions and not with church attendance. Therefore, the differences between different religious groups reflect more ethno-cultural and social differences rather than differences in spirituality.

Gender

The effect of gender on NATURE and LIMITS TO GROWTH was evaluated using the analysis of variance technique to test the null hypothesis of no difference between males and females. The value of F-test for NATURE was 3.682 (p=.055) and for LIMITS TO GROWTH .025 (p=876). So, we couldn't reject the null hypothesis of no difference in the population and we conclude that gender has no effect on supporting or rejecting the ideas of NEP.

Table 2. Association between NATURE and the socio-demographic variables

Indep. Variables	*NATURE*		
	Bivariate Pearson's r	Partial Regression Coefficient	Post-Hoc Contrast Bonferroni
Age	r=.018	β=.027	generation mean differences NS
Residence	r=.129***	β=.066	village <sm. town * village <big city***
Income	r=.022	β=.093**	n.a.
Social Status	r=.147***	β=.026***	n.a.
# of children	r=-.024	β=-.087	n.a.
Religion	R=.007 R^2=.000	Muslim A=20.01 Christian B=-.007	n.a.
Gender	R=.062 R^2=.004	female A=19.81 male B=.300	n.a.
Political Ideology	R=.178*** R^2=.032	apolitical A=20.231*** nationalist B=-.848* chr.democr B=-1.10** social democr B=.037 liberal B=-1.26*** agrarian B=-.373 green B=.139 socialist B=-.215 communist B=.269	
Party affiliation	R=.193*** R^2=.037	apolitical A=20.25*** BBB B=1.08 BSP B=-.257 MRF B=-.815 Euroleft B=.179 UDF B=-1.06*** Other B=.417	

r=Pearson's r coefficient; R=Multiple R; R^2=coefficient of multiple determination; β=standardized partial regression coefficient; A=regression intercept; B=unstandardized partial regression coefficient; BBB=Bulgarian business block; BSP=Bulgarian socialist party; MRF=Movement for rights and freedom; UDF=Union of democratic forces
*significant at p=.05; ** significant at p=.01; ***significant at p=.001

Table 3. Association between LIMITS TO GROWTH and the socio-demographic variables

Indep. Variables	*LIMITS TO GROWTH*		
	Bivariate Pearson's r	Partial Regression Coefficient	Post-Hoc Contrast Bonferroni
Age	r=-.091**	β=-.094**	generation mean differences NS
Residence	r=.180***	β=.118***	village <big city*** sm. town < big city***
Income	r=-.030	β= .075*	n.a.
Social Status	r=.122***	β= .082*	n.a.
# of children	r=-.039	β=-.053	n.a.
Religion	R=.097** R^2=..009	muslim A=12.206 christian B=.097**	muslim <christian othodox*
Gender	R=.005 R^2=..000	female A=13.068 male B=-.03	n.a.
Political Ideology	R=.141* R^2=.020	apolitical A=13.33*** nationalist B=-.170 chr. democr.B=-.482 social dem. B=.-106 liberal B=-.491 agrarian B=-1.28*** green B=.106 socialist B=-.119 communist B=.592	
Party affiliation	R=.097 R^2=.009	apolitical A=13.24*** BBB B=.591 BSP B=-.340 MRF B=-1.37* Euroleft B=-.099 UDF B=-.465 Other B=.114	

r=Pearson's r coefficient; R=Multiple R; R^2=coefficient of multiple determination; β=standardized partial regression coefficient; A=regression intercept; B=unstandardized partial regression coefficient; BBB=Bulgarian business block; BSP=Bulgarian socialist party; MRF=Movement for rights and freedom; UDF=Union of democratic forces
*significant at p=.05; ** significant at p=.01; ***significant at p=.001

Political Views

Political ideology was slightly positive correlated only with NATURE (r=.091), although this correlation disappeared when controlling for the other socio-demographic factors. The Bonferroni's test revealed that there are differences for NATURE between social democrats and liberals, the former being more pro-environmental. The multiple regression on NATURE with dummy coding of political ideology (DK/Refused, being the excluded group) demonstrated that, compared to people without defined political ideology, the following categories are associated with less support for the concepts of balance of nature/anti-technocratism/rejection of exemptionalism: Nationalist (B=-.087), Christian democrat (B=-.108) and Liberal (B=-.138) For LIMITS TO GROWTH, the Bonferroni tests suggested that agrarians are more pro-developmental/anthropocentric/denying eco-crisis than social democrats and than socialists. The multiple regression on LIMITS TO GROWTH with the same dummy coded variables showed that compared to people without defined political ideology, the Agrarians would be more pro-developmental (B=-.138).

The Bonferroni test for difference in the means of NATURE for the different categories of party affiliation showed that the only significant difference is between the sympathizers of UDF and the people who do not sympathize with any political party, which means that the latter are more pro-environmental. The partial correlation coefficient for UDF (B=-.189) in a multiple regression of NATURE with dummy coded party affiliation also suggested that the sympathizers of UDF are a little more likely to be opposed to the ideas of balance of nature and tend to be more technocratic and exemptionalist than the sympathizers of any other party and the apolitical people.

For LIMITS TO GROWTH, the Bonferroni's test revealed no meaningful differences among political parties. The multiple regression showed that the sympathizers of the Movement for Rights and Freedom (MRF) are more pro-developmental than the other groups (B=.-071). However, it can be argued whether this will still hold true when controlling for residence since most of the sympathizers of MRF live in rural areas, which are currently under severe economic burden.

There is evidence in the data that people who are politically active, i.e. those who have a defined political ideology and those who sympathize with a political party, would be more likely to adhere to the ideas in the DSP,

while people who are not politically active would more likely hold eco-centric views.

The statistical analysis of the socio-demographic predictors of environmental concern suggests that if there are any social differences in the environmental worldviews of the Bulgarians. People who would be most likely to hold eco-centric worldviews would be highly educated persons, intellectuals, urban residents, and not politically active.

CONCLUSIONS

The low association between both scales measuring environmental concern and the socio-demographic variables show lack of dramatic differences between the social groups in their level of environmental concern. This fact speaks in favor of the broadening base hypothesis. The concern about the environment is relatively evenly distributed in the populace and there are very minor differences between different social groups.

However, Bulgarians still fall a little behind the citizens of Western democracies in their level of environmental concern and in particular of their willingness to sacrifice economic development and well-being for environmental protection. However, having in mind the process of rapid economical transformations in the country and the perspectives to join the European Union, and therefore to bring living standards to the level of Western European countries by the year 2010, it is expected that the patterns of environmental concern will become very similar to that of the advanced industrial democracies.

The results of this study show that Bulgarians are not complete holders of the New Environmental paradigm. They respect nature, although they do not see it as limit to economic growth and they still hold some of the old

technocratic values, such as the belief in science and technology. They would support environmental actions but not at the expense of opportunities to raise their living standards through technological and economic development.

The intellectual elite is somewhat more likely to share the new environmental belief system, which is an abstraction to the ordinary Bulgarians.

Further research is needed to determine what are the attitudes of Bulgarians towards their local environment and how general and local environmental concern determines their behavior, both economic and political, as well as their attitudes to the key players in environmental and health protection. These issues have been addressed in the Bulgarian Environment and Health Attitudinal Survey and will be subject for future analysis.

Question wording

New Environmental Paradigm

When it comes to the relationship between people and the environment, to what extent you agree or disagree with the following statements? (strongly agree, agree, disagree, strongly disagree)

- NEP 1. The balance of nature is very delicate and easily upset by human activities
- NEP 2. Most problems can be solved by applying more and better technology
- NEP 3. There are no limits to growth for advanced industrialized nations
- NEP 4. Humans were created to rule over the rest of nature
- NEP 5. Science and technology do as much harm as good
- NEP 6. Modifying the environment for human use seldom causes serious problems
- NEP 7. The earth is like a spaceship with only limited room and resources
- NEP 8. Through science and technology we can continue to raise our standard of living
- NEP 9. Plants and animals do not exist primarily to be used by humans
- NEP 10. Technology has made the world a riskier place to live
- NEP 11. The so called "ecological crisis" facing mankind has been greatly exaggerated
- NEP 12. The earth can support a much larger world population than exists today

Socio-Demographic Variables

Do you do without something daily that is necessary for a normal life (according to the Bulgarian standard of living)?

1. No, I don't do without anything important
2. Very seldom I would do without something important
3. Very often I need to do without important things
4. I am constantly doing without the most important things

For what do you have enough money?

1. For everything that I want, -- even for luxurious things
2. For everything that is needed for a normal life
3. Only for the most important things
4. I don't have enough money even for the most important things

Are there children below 18 years of age in your household?

1. One
2. Two
3. Three
4. More than three
5. No children below 18
6. No children

What is the religion of your kin?

1. Christian Orthodox
2. Muslim
3. Catholic
4. Other

What is your education?

1. Less than elementary school
2. Elementary school
3. Vocational school
4. High school
5. High technical school
6. College
7. Post-graduate

Which one of the groups do you belong to?

1. Blue collar workers *(industry, construction, forestry)*
2. Blue collar workers *(trade, services, crafts)*
3. Agricultural workers *(animal breeding, tobacco, vegetable and fruit, grain)*
4. White collar worker - state administration, institution
5. White collar worker - firm, enterprise
6. Private entrepreneur *(with employees)*
7. Private entrepreneur *(without employees)*
8. Technical intelligence
9. Humanitarian intelligence *(economists, doctors, teachers, art)*

Do you sympathize with any of the political parties

(alliances)?

1. I sympathize most with ……..
2. I sympathize also with……..
8. I DO NOT sympathize with any of the political parties *(alliances)* in our country
9. I am scared *(disgusted)* by the politics

How would you define your political views?

1. Agrarian
2. Communist
3. Socialist
4. Social democrat
5. Green
6. Christian democrat
7. Liberal
8. Nationalist
9. Other (what particular)

BIBLIOGRAPHY:

Albrecht, D., G. Bultena, E. Hioberg, and P. Nowak (1982), The new environmental paradigm scale, *Journal of Environmental Education*, 13, pp.39-43

Brechin, S.R. (1999), Objective Problems, Subjective Values, and Global Environmentalism: Evaluating the Post-materialist Argument and Challenging a new Explanation, *Social Science Quarterly*, 80(4), pp. 793-809

Buttel, F. H. (1992), Environmentalization: Origins, processes, and implications for rural social change, *Rural Sociology*, 57(1), pp.1-27;

Buttel, F. H. and W. L. Flinn (1977), Conceptions of rural life and environmental concern, *Rural Sociology*, 42(4), pp. 544-555;

Buttel, Frederick H. (1987), New directions in environmental sociology, *Annual review of sociology*, 13, pp. 465-485.

Catton, William R. Jr., and Riley E. Dunlap (1980), A new ecological paradigm for post-exuberant sociology, *American Behavioral Scientist*, 24(1), pp.15-44.

Cotgrove, Stephen(1982), *Catastrophe or Cornucopia: The Environment, Politics and the Future*, New York: John Wiley and Sons.

Dalton, R.J. (1984), Cognitive mobilization and partisan dealignment in advanced industrial democracies, *Journal of Politics*, 46, pp.264-284

Dalton, R.J. (1988), Citizen politics in Western democracies: Public opinion and political parties in the United States, Great Britain, West Germany and France, Chatham, NJ, Chatham House Publishers, Inc.

Davidson, D.J., W.R.Freudenburg (1996), Gender and environmental risk concerns, *Environment and Behavior*, 28(3), pp.302-339.

Diekmann, Andreas, and Axel Franzen (1999), The wealth of nations and environmental concern, *Environment and Behavior*, 31(4), pp.540-549.

Dunlap Riley E., and Kent D. Van Liere (1978), The new environmental paradigm: A proposed measuring instrument and preliminary results, *Journal of environmental education*, 9 (Summer), pp.10-19.

Dunlap, Riley E., and Angela G. Mertig (1995), Global

concern for the environment: Is affluence a prerequisite? *Journal of Social Issues*, 51(4), pp.121-137.

Dunlap, Riley E., and Angela G. Mertig (1996), Global environmental concern: A challenge to the post-materialism thesis, pp. 132-159 in *Social Dimensions of Contemporary Environmental Issues: International Perspectives*, edited by Peter ester and Wolfgang Schluchter, Tilburg University Press.

Dunlap, Riley E., George H. Gallup Jr., and Alec M. Gallup (1993), *Health of the Planet: A George H. Gallup Memorial Survey*, Princeton, NJ: Gallup International Institute.

Edgell, M.C.R., and D.E. Nowell (1989), The new environmental paradigm scale: Wildlife and environmental beliefs in British Columbia, *Society and Natural Resources*, 2, pp.285-296.

Geller, J.M., and P. Lasley (1985), The new environmental paradigm scale: A reexamination, *Journal of Environmental education*, 17, pp.9-12.

Gooch, Geoffrey D.(1995), Environmental beliefs and attitudes in Sweden and the Baltic States, *Environment and Behavior*, 27(4), pp.513-539.

Inglehart, R. (1990), Culture Shift in Advanced Industrial Society, Princeton, Princeton University Press

Jones, Robert E., and Riley E. Dunlap (1992), The social bases of environmental concern; have they changed over time? *Rural Sociology*, 57(1), pp.28-47.

Kanagy, Conrad L., and Hart M. Nelsen (1995), Religion and environmental concern: challenging the dominant assumptions, *Review of Religious Research*, 37(1), pp.33-45.

Kanji, M. and N. Nevitte (1997), Environmental support, concern and action: An exploratory crossnational analysis, *International Journal of Public Opinion Research*, Spring, pp. 66-76.

Kitschelt, H. (1993), Social movements, political parties and democratic theory, *Annals of the American Academy of Political and Social Science*, 5(8), pp.13-29.

Kuhn, R.G., and E.L. Jackson (1989), Stability of factor structure in the measurement of public environmental attitudes, *Journal of Environmental Education*, 20, pp.27-32.

Marsh C.P. and J.A. Christenson (1977), Support for economic

growth and environmental protection: 1973-1975, *Rural Sociology*, 42(1), pp. 101-107;

Maslow, A.H.1970), *Motivation and Personality*, 2nd ed. New York:Viking Press.

McBeth. M.K. (1996), The environment v. the economy: attitudes of state rural development officials, *Spectrum*, Winter, pp. 17-27;

Meadows, Donella H., Dennis 1. Meadows, Jorgen Randers, and William W. Behrens,III (1972), *The Limits to Growth*, London:Potomac Assoc.

Mertig, Angela G., and Riley E. Dunlap (1995), Public approval of environmental protection and other new social movement goals in Western Europe and the United States, *International Journal of Public Opinion Research*, 7(2), pp.145-155.

Milbrath, Lester W. (1989), *Envisioning a Sustainable Society: Learning Our Way Out*, Albany: State University of New York Press.

Milbrath, Lester W.(1984), *Environmentalists: Vanguard for a New Society*, Albany: State University of New York Press.

Mormont, M. (1990), Who is rural/ or, how to be rural; Towards a sociology of the rural, pp.21-43 in Marsden, T., P. Lowe and S. Whatmore (eds.), *Rural Restructuring: Global processes and their responses*, David Futton Publishers;

Noe, F.P., and R. Snow (1990), The new environmental paradigm and further analysis, *Journal of Environmental Education*, 21, pp. 20-26.

Olsen,Marvin E., Dora G. Lodwick, and Riley E.Dunlap (1992), *Viewing the world ecologically*, Boulder: Westview Press.

Pirages and Ehrlich (1974) *Ark2: Social responses to Environmental Imperatives*, San Francisco: W.H.Freeman

Schultz, P.W., L. Zelezny, N. J. Dalrymple (2000), A multinational perspective on the relation between Judeo-Christian religious beliefs and attitudes on environmental concern, *Environment and Behavior*, 2000, 32(4), pp. 576-591.

Stern, P.C., T. Dietz and L. Kalof (1993), Value orientations, gender and environmental concern, *Environment and Behavior*, 25(3), pp. 322-348

Tilidjiev, N., S. Koleva, T. Zlatkov, M.Keliyan and

D.Kostova, (1997) *Social Stratification and Inequality,* Sofia, M-8-M;

Tremblay, K.R.Jr and R.E. Dunlap (1978), Rural-urban residence and concern with environmental quality: A replication and extension, *Rural Sociology,* 43(3), pp.474-491;

Van Liere, Kent D., and Riley E. Dunlap (1980), The social bases of environmental concern: a review of hypotheses, explanations and empirical evidence, *Public Opinion Quarterly,* 44(Summer), pp.181-197.

Weiskel, T.C. (1990) Cultural values and their environmental implications: An essay on knowledge, belief and global survival, *Paper presented at the annual meeting of the American Association for the Advancement in Science,* New Orleans.

Yarnal, Brent (1995), Bulgaria at a crossroads, *Environment,* 37(10), p.6.

Zeigler, C.E. (1987), *Environmental Policy in the USSR,* London:Frances Pinter