علـوم محـیطی سال ششم، شماره اول، پاییز ۱۳۸۷
ENVIRONMENTAL SCIENCES Vol.6, No.1, Autumn 2008
131-140

Appraisal of Attitudes Toward Sustainable Development

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Abstract

After Rio summit, Department of Environment (DOE) was identified as responsible for policy making and integrating of environmental concerns into the country's social and economic development plans in Iran. It is clear that the performance of Department of Environment is dependent on the perceptions and knowledge of its staff and experts, since perception and attitude is learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object and creates action or behavior that is generally consistent. Regarding, this study, staff perceptions were assisted toward items in relate with the chapter headings of the UNCED document Agenda 21. The number of participants was 120, randomly drawn from the selected population. Factor analysis was utilized to reveal the latent attitudes behind the staff's perceptions. The findings were indicated that there are 8 factors to measure the construct of sustainable development about 82.3 percent the variance. Results were indicated that the most important domain of sustainable development in environmental experts' viewpoints is natural resources protection and environmental management. Then, it was concluded that perceptions are more towards the environmental dimension than economic and social dimensions of sustainable development.

Keywords: sustainable development, attitude, environment

ارزیابی نگرش نسبت به توسعه پایدار

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چکیده

بعد از اجلاس ریو، سازمان محیط زیست به عنوان مسئول سیاست گزاری و گنجاندن مسایل محیط زیستی در برنامه های توسعه اقتصادی- اجتماعی ایران تعیین گردید. ازآنجا که نگرش و درک زمینه ساز رفتار مناسب و یا نامناسب به جانب اهداف هستند ، و باعث خلق رفتارها و اقداماتی می شود که کلا در راستای اهداف است، واضح است که عملکرد سازمان محیط زیست در این زمینه به ادراکات و دانش کارشناسان و کارکنان اش وابسته است. در راین رابطه، در این مطالعه، نگرش کارکنان به جانب سرفصل‌های دستورکار ۲۱ اجلاس جهانی توسعه پایدار و محیط زیست بررسی گردید. تعداد پاسخگویان ۱۲۰ نفر بود که ازجامعه آماری به طور تصادفی انتخاب شدند. تحلیل عاملی برای تعیین مولفه های زیربنایی ادارکات کارکنان استفاده شد. یافته ها نشان داد که ۸ عامل به عنوان مولفه‌های زیربنایی توسعه پایدار۸۲/۳ درصد واریانس را براورد نموده اند. نتایج نشان داد که مهمترین بعد ازنظر کارشناسان، حفاظت از منابع طبیعی و مدیریت میحط زیست است. لذا نتیجه می‌شود که نگرش‌ها به جانب محیط زیست بیش از بعد اجتماعی و اقتصادی گرایش دارند.

واژه‌های کلیدی: توسعه پایدار، نگرش و محیط زیست

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Introduction

The main aim of the 1992 UN Conference on Environment and Development was to integrate environmental considerations more fully into the development process (UN, 1992, Ch. 8.7). Governments have a key role to play in this regard, because of their wide-ranging responsibilities and functions in relation to the environment, planning, development, housing and the provision of other physical and personal services. A lot of different initiatives have also been initiated on regional, national and local level to promote the integration of well-defined sustainability criteria into all programmes and activities concerning environment and development (Howlin, 1995). Regarding the policy making, the Iranian National Committee Sustainable Development (NCSD) was instituted by Environmental Supreme Council (ESC). The primary goals and vision of the NCSD was policy making and integration of environmental concerns into the country's social and development plans. Thereafter, the Bureau of Sustainable Development and Ecological economic (BSDEE was established in Department of Environment (DOE). The main goals of BSDEE were the development of institutional framework as one of the elements of the Johannesburg Reclamation through developing indicators and strategies of SD and also found the practical ways to implement Agenda 21 and ensured a balance between economic and social development and the protection of the environment. Therefore the responsibility of accomplishing of the goals of NCSD and BSDEE are the tasks of DOE. It is clear that the performance of DOD is dependent on staffs and experts perceptions and knowledge of SD. Because, according to Fishbein and Ajzen (1975) and Meisalo (2004), attitude is learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object. Attitude creates action or behavior that is generally consistent. Regarding this fact, at present research, we identify beliefs with an individual's personal knowledge which is a compound of the conclusions that an individual makes based on experience and perceptions towards SD.

Sustainable Development

The Brundtland Commission's brief definition of sustainable development as the "ability to make development sustainable—to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs" is surely the standard definition when judged by its widespread use and frequency of citation. In the years following the Brundtland Commission's report, the creative ambiguity of the standard definition, while allowing a range of disparate groups and scholars to assemble under the sustainable development tent, also created a veritable industry of deciphering and advocating what sustainable development really means (Kates et al. 2005). One important study—by the Board on Sustainable Development of the U.S. National Academy of Sciences—sought to bring some order to the broad literature its members reviewed. (National Research Council, 1992). In its report, Our Common Journey: A Transition toward Sustainability, the board focused on the seemingly inherent distinction between what advocates and analysts sought to sustain and what they sought to develop, the relationship between the two, and the time horizon of the. Thus under the heading "what is to be sustained," the board identified three major categories—nature, life support systems, and community—as well as intermediate categories for each, such as Earth, environment, and cultures. Similarly, there were three quite distinct ideas about what should be developed: people, economy, and society. Davidson et al, (1993) asserted that sustainable development is an alliance of three essential elements- people, their environment and the future. Jabareen (2006) determined seven distinct concepts for sustainable development include: ethical paradox, equity, global agenda, natural capital stocks, Utopia, integrated management and eco-form. Rinzin et al, (2007) according with the philosophy of 'gross national happiness also expresses a preference for happiness over accumulation of material wealth and the development path that rests on the four so-called pillars of development: sustainable and

equitable economic development; ecological preservation; cultural preservation; good governance. However, a critical review of the multidisciplinary literature on sustainable development reveals a lack of a comprehensive theoretical framework for understanding sustainable development and its complexities.

Agenda 21: Sustainable Development Framework

Another way to define sustainable development is in what it specifically seeks to achieve (Parris and Kates, 2003). According to this fact, the agenda 21 as one of the main outcomes of the Rio De Janeiro conference of 1992 that was strongly reaffirmed at the World summit on sustainable development held in Johannesburg in 2002 (Carey-Bailey, 2007) offer a widely accepted and well publicized framework and cover the dimensions of SD framework. Agenda 21 forms the basis for a "global partnership" to encourage cooperation among nations as they support a transition to sustaining life on earth. The central belief is that all countries can protect the environment while simultaneously experiencing growth. The Agenda comprises 40 chapters (arranged in 4 Sections), which address all levels of social organization, from national and local governments through to development agencies, non-governmental organizations and community-based organizations, in every area in which human activity impacts upon the environment. Each chapter describes a program area and comprises four parts: the basis for action, objectives, activities and means of implementation (Box1, Agenda 21). In this study, it hypothesized that the chapter headings of the UNCED document Agenda 21 offer a widely accepted and well publicized framework and cover the dimensions of SD framework. As staff perceptions were assisted toward 45 items in relate with the chapter headings of the UNCED document Agenda 21.

Methodology

Appropriate selection of a research method was a key issue at the outset of the research (Yin, 1994). The survey was conducted in winter 2008 by the Environmental Science Research Institute at the University of Shahid Baheshti. The population identified to participate in this study was staffs and experts of DOE in Iran. A sampling formula indicated that a total of 600 subjects should be sampled from the population. A total of 120 staffs and experts were randomly selected to represent the population. The subjects thus identified were sent a mailed survey. Of this sample, 102 responded as the result of the original mailing and follow-up mailing. A response rate of.82% was obtained. The panel of experts (experts, students and teachers) was used for assuring content validity. The instrument was pilot tested for clarity and reliability, using staffs and experts of environment from DOE. The Cronbach's Alpha coefficient of internal consistency for the items measuring the staffs and experts attitudes toward SD was 0.72. According to Hair *et al.* (1995), the commonly used coefficients limiting value of acceptable reliability is 0.85. Basis on data in this research, this indicator can be considered relatively reliable in measuring staffs and expert's of DOE attitudes towards SD. Minor revisions were made to the questionnaire to improve clarity and the internal consistency of the instrument. The instrument assessed the environment experts' (a) attitudes toward SD. Attitude was categorized with a score of 1 graded as negative attitude until 5 positive, to measure experts' perceptions on items related to SD was used in this study. Analyses of data were accomplished using factor analysis. Factor analysis was utilized to reveal the latent attitudes behind the expert's opinions. A.05 level of significance was selected. The results that follow are based on the response to the survey. The appropriateness of the data for factor analysis was evaluated using Bartlett's Test of Sphericity (BTS).

Results

Demographic Characteristics

Of the 120 experts responding, 70.9% were male, 28.1% were female; the average age of the

respondents was 33.41 years; 79.63% had less than 10 years of environmental background; and 53% of the responding expert's members had BSc degree. Participants in the present study were drawn from several organization deviations. The largest number of experts concentrated their work in the area of natural environment and biodiversity (56%), followed by 30.2% in the area of human environment. Few experts reported their work area as the education of environment (13.8 %).

Attitudes regarding to sustainable development

To determine the attitude of the respondents with regard to sustainable development, attitude was categorized with a score of: < 80 indicating negative attitude or unfavorable; between 81 and 150 indicating moderately positive or neutral; and ≥ 150.1 indicating positive or favorable. The results in Table 1 showed that a majority of the respondents, 74.70%, had a moderately positive or neutral attitude towards sustainable development, with 22.28% having a favorable attitude and only 3% having a negative attitude.

Factor Analysis

Table 1 shows all the factors extractable from the analysis along with their eigenvalues, percent of variance attributable to each factor, and the cumulative variance of the factor and the previous factors. The results indicated that there were 8 factors to measure the construct of sustainable development about 82.03 percent the variance that the first factor accounts for 16.33 %, the second 15.80 %, the third 15.11 % , the fourth 12.44 %, fifth 8.61 %, sixth 6.11 % , the sevenths 4.12 % and eighths 4.03 % of the variance (Table 1).

Table 1: Summary of trichotomized attitudinal score environmental experts toward Sustainable development

Attitude Score	Trichotomy	Frequency	Percent	Cumulative (%)
Unfavorable	< 80	6	3.0	3.0
Neutral	81-150	148	74.7	77.7
favorable	>150.1	44	22.3	100.0
Total		198	100.0	

Our findings also showed the loadings of the variables on the eight factors extracted (Table 2). The higher the absolute value of the loading, the more the factor contributes to the variable. The gap on the table represents loadings that are less than 0.35, which makes reading the table easier. We excluded all loadings less than 0.35. According to Varimax Rotation matrix (Table 2), the idea of rotation is to reduce the number of factors on which the variables under investigation have high loadings. Rotation does not actually change anything but makes the interpretation of the analysis easier. The verbal description of each factor is as follows:

Factor 1 represents a statement that people such as farmers, NGOs members, workers, industries, women, child and youth, and indigenous people have the key role in sustainable development if they are informed and empowered to involve into development process.

Factor 2 expresses the environmental management through transferring environmentally sound technology, changing consumption pattern, integrated approach to the planning and management of land resources, environmentally sound management of biotechnology and fragile ecosystems such as mountains, sea and desert.

Table 1. Total Variance Explained

	Extraction Sums of Squared Loadings			*Rotation Sums of Squared Loadings*		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	*Cumulative %*
Factor 1	18.516	48.727	48.727	6.206	16.331	*16.331*
Factor 2	2.934	7.721	56.448	6.004	15.800	*32.131*
Factor 3	2.518	6.627	63.075	5.745	15.118	*47.249*
Facto 4	1.834	4.826	67.901	4.729	12.446	*59.695*
Facto 5	1.726	4.542	72.443	3.063	8.061	*67.756*
Facto 6	1.353	3.560	76.003	2.323	6.114	*73.869*
Facto 7	1.231	3.240	79.243	1.569	4.129	*77.998*
Facto 8	*1.062*	*2.795*	*82.038*	*1.535*	*4.039*	*82.038*

Factor 3 emphasizes on institutional actions in international level such as the development of international cooperation and arrangements, and the established legal, scientific, technological and financial instruments and mechanisms for sustainable development.

Factor 4 places the emphases on the protection of environment through combating deforestation, conservation of the oceans, the atmosphere, the quality and supply of freshwater resources and biodiversity.

Factor 5 indicates that human development such as combating poverty, developing health and human settlement and managing the population dynamics is the major step toward sustainability.

Factor 6 covers the items pertaining to waste management including environmentally sound management of toxic chemicals, hazardous, and solid wastes. This factor also emphasizes that management of sewage-related issues environmentally is the important action in sustainable development.

Factor 7 expresses a statement that development process must be knowledge oriented to some extent; considering that the information and science are the two important components in decision making of sustainable development.

Factor 8 represents a statement that local actions and initiatives in support of Agenda especially through national government in form of developing national mechanisms and international cooperation for capacity-building have a significant role in movement toward sustainable development.

Table. Rotated Component Matrix

Variable	Component								
	1	2	3	4	5	6	7	8	
Global action for women towards sustainable and equitable developmen	.72								Empowering and involving of people
Strengthening the role of business and industry	.54								
Promoting education, public awareness and training	.62								
Strengthening the role of workers and their trade unions	.60								
Strengthening the role of farmers	.54								
Strengthening the role of non-governmental organizations: partners for sustainable development	.78								
Recognizing and strengthening the role of indigenous people and their communities	.80								
Children and youth in sustainable development	.63								
Transfer of environmentally sound technology, cooperation and capacity-building		.79							Environmental management
Integrating environment and development in decision-making		.77							
Integrated approach to the planning and management of land resources		.75							
Environmentally sound management of biotechnology		.65							
Managing fragile ecosystems: combating desertification and drought		.63							
Managing fragile ecosystems: sustainable mountain development		.66							
Changing Consumption Pattern		.50							
International Cooperation for Sustainable Development			.85						Institutional Development
International institutional arrangements			.85						
International legal instruments and mechanisms			.89						
Financial resources and mechanisms			.89						
Scientific and technological community			.45						
Combating deforestation				.72					Protection of environment
Protection of the oceans, all kinds of seas, and coastal areas and the protection, rational use and development of their living resources				.70					
Protection of the quality and supply of freshwater resources				.64					
Conservation of biological diversity				.46					
Protection of the Atmosphere				.47					
Promoting sustainable agriculture and rural development					.43				Human development
Combating Poverty					.81				
Promoting sustainable human settlement development					.71				
Human Health					.66				
Demographic Dynamics & Sustainability					.37				
Environmentally sound management of toxic chemicals,						.578			Environmental waste management
Environmentally sound management of hazardous wastes, in hazardous wastes						.47			
Environmentally sound management of solid wastes and sewage-related issues						.639			
Safe and environmentally sound management of radioactive wastes						.50			
Information for decision making							.50		Knowledge for sustainable development
Science for sustainable development							.51		
national mechanisms and international cooperation for capacity-building in developing countries								.82	National and local Action
Local authorities' initiatives in support of Agenda								.36	
	16.3	15.8	15.1	12.4	8.06	6.1	4.1	4.01	

Dissuasion and Conclusions

The following discussion is based on the results in Tables 1 and 2. Concerning the nature of items covered by factors (Table 2), the names of empowering and involving of people, environmental management, institutional development, protection of environment, human development, environmental waste management, and knowledge for SD and national and local action were selected as infrastructure components.

The loadings of the factors indicated that environmental aspects including environmental management, environmental waste management and protection of environment could be considered as the critical issues to accomplish sustainable development. On the other hand, ecologically sustainable development is the development path. This result supported the statement by Black (2001) that claim context and background on environmental attitudes and behavior. Environmental management and environmental waste management factors are pertain to precautionary principle that aims to guide action under scientific uncertainty, regarding environmental impacts. These factors require that when there is a reasonable possibility of serious or irreversible harm to the environment, protective action should be taken in advance of clear evidence of harm. Similarly, protection of environment factor is related to the principles of intergenerational equity and conservation of biological diversity and ecological integrity (Harding, 2006). Considering all factors, factors 1 and 5 covered 25% of the total variance. This indicates that social and economic dimensions from expert's viewpoints and human aspects have the second position in SD. This finding is contradictory with People Oriented theory of Davidson and Chakraborty (1992), and Haughton (1999) agreement that asserted ''the social dimension is critical since the unjust society is unlikely to be sustainable in environment or economic terms in the long run''.

Regarding the means of implementation of SD, results imply that achieving SD requires intuitional actions in local, national and international levels. This is in accordance with the global agenda in the Jabareen's conceptual framework and sustainable development strategies that are asserted by **Dalal-Clayton and Bass** (2002).

Overall, the present study found that knowledge and information are critical tools for decision making in SD. The findings from this study support the proposition by Hamel (2005) who stated that knowledge is becoming the chief currency of the modern age and a decisive resource for sustainable development. It also supports the argument by Crawley (2002) that there is a need to have accurate and presentable information to support and catalyze decision-making for strategy and action plan development as well as policy formulation and review.

Acknowledgement

This paper is a part of sabbatical work that is supported financially by Shahid Beheshti University. Hereby, Corresponding author thanks from Shahid Beheshti University.

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