

# PERCEPTIONS AND UNDERSTANDING TOWARDS SUSTAINABLE DEVELOPMENT

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**Abstract:** This article drew managers' understanding on concept, dimensions, mechanisms and stakeholders of sustainable development (SD). The respondents were 338 managers of seven randomly selected ministries including the Ministries of: Education; the Interior; Housing and Urban Development; Health and Medical Education; Science, Research and Technology; Energy; and Jihad-e-Agriculture. The main research tool was a questionnaire. The findings revealed that responsible well-being and improvement is central to sustainable development from the managers' prospective, while the linkage between sustainability and development issues has less importance. Respondents also pointed out that combating deforestation, protecting the atmosphere, managing fragile ecosystems and protecting the quality and supply of freshwater resources were the most important dimensions for achieving the goals of SD in practice. Results of the study on the mechanisms of SD also showed that respondents believed "financial resources" and "clean technology transfer" have greater priority over other mechanisms for implementing SD programs. Overall, they pointed out that major groups, namely NGOs, trade unions, farmers, scientific and technological community and indigenous people play key roles in practicing SD programs.

**Keywords:** sustainable development, education, perception, understanding, Contexts, Mechanism, Stakeholders

## 1. INTRODUCTION

Among various approaches to addressing sustainable development (Yoshizumi and Miyaguchi, 2005), education has been recognized as one of the key measures for achieving sustainability (UN, 1992; UNESCO, 2005; WCED, 1987), particularly since the World Commission on Environment and Development (WCED) published Our Common Future in 1987. Because sustainability requires a population that is aware of the goals of a sustainable

society and has the knowledge and skills to contribute to those goals, and consequently, to express sustainability behavior. This is particularly true of governmental managers because, first over two-thirds of the actions set out in Agenda 21 as one of outcomes of WCED, require the involvement of local governments (Keate, 1993; BGCI, 1999) and so the primary responsibility for implementing Agenda 21 lies with government (Veisi et al. 2008). Second, given the multidimensional nature of the concept of SD, there is no single model that would be good enough for planning the 'sustainability' of development (Quaddus and Siddique, 2001), so that it all depends upon how managers, as planners or policymakers, understand and interpret the concept of sustainable development. In view of the aforementioned facts, the study was designed to describe governmental managers' understanding and perception of SD in Iran. The following research questions provided direction for the study. (1) What was the knowledge and understanding of managers about the SD concept? (2) Which level of knowledge and understanding was showed by managers regarding means, stakeholders and required capabilities of SD?

## II. THEORETICAL BACKGROUND

Sustainability requires two types of knowledge: knowledge of sustainability and knowledge for sustainability. The distinction between them is that the former is the understanding of what is sustainability and the latter is the understanding of what can be done (actions) to achieve sustainability (Peterson et al., 2005). Considering that the concept of sustainable development is now enshrined on the masthead of environment magazine, featured on 8,720,000 Web pages, and enmeshed in the aspirations of countless programs, places, and institutions, it should be easy to complete the sentence. But the most widely accepted definition is creatively ambiguous: "Humanity has 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” (Kates et al. 2005). However this definition (from the 1987 ‘Brundtland Report’) has been criticized by many scholars and leading international institutions, such as the United Nations Division for Sustainable Development (2004), as vague since it does not specify the time horizon of future generations, gives no indication of the role of the environment and refers to the opaque concept of “human needs”. Accordingly, an array of definitions of sustainability and SD are used in different contexts (Ahmed and McQuaid, 2005). One important study—by the Board on Sustainable Development of the U.S. National Academy of Sciences (1999)—sought to bring some order to the broad literature its members reviewed. 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 future. 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 the earth, the environment, and cultures. Similarly, there were three quite distinct ideas about what should be developed: people, economy, and society. Much of the early literature focused on economic development, with productive sectors providing employment, desired consumption, and wealth. Recently, attention has shifted to human development, including an emphasis on such values and goals as increased life expectancy, education, equity, and opportunity. Finally, the Board on Sustainable Development also identified calls to develop a society that emphasized the values of the security and well-being of national states, regions, and institutions as well as the social capital of relationships and community ties. There was ready agreement in the literature that sustainable development implies linking what is to be sustained with what is to be developed, but here, too, the emphasis has often ranged from extremes of ‘sustain only’ to ‘develop mostly’ to various forms of ‘and/or’. Similarly, the time period of concern, ambiguously described in the standard definition as “now and in the future,” has differed widely. It has been defined from as little as a single generation—when almost everything is sustainable—to forever—when surely nothing is sustainable.

In a further study, Jabreen (2006) recommended seven critical concepts whereby each concept has distinctive meanings while representing closely-related ideas on sustainability: (a) The concept of ethical paradox rests at the heart of this framework. The paradox between ‘sustainability’ and

‘development’ is articulated in terms of ethics. In this way, SD tolerates diverse interpretations and practices that range between ‘light ecology’, which allows intensive interventions, and ‘deep ecology’, which allows minor interventions in nature. (b) Natural capital represents the environmental and natural resource assets of development and preservation. The theoretical framework of sustainability advocates keeping the natural capital constant for the benefit of future generations. (c) The concept of equity represents the social aspects of SD. It covers different concepts such as environmental, social and economic justice, social equity, quality of life, freedom, democracy, participation and empowerment. (d) The concept of eco-form represents the desired spatial form of human habitats: cities, villages and neighborhood. ‘Sustainable’ design aims to create eco-forms, which are energy efficient and designed for long life. Its common principles could be explained through the concept of ‘time-space-energy compression’, which requires reductions in time and space in order to reduce energy usage. (e) The concept of integrative management represents the integrative and holistic view of the aspects of social development, economic growth and environmental protection. It is believed that in order to achieve ecological integrity, i.e. to preserve the natural capital stock, we need integrative and holistic approaches in management. (f) The concept of a global political agenda represents a new worldwide political environmental discourse reconstituted around the ideas of sustainability. Since the Rio Summit, this discourse has extended beyond purely ecological concepts to include various international issues, such as security, peace, trade, heritage, hunger, shelter, and other basic services. (g) The concept of utopianism represents visions for the human habitats based on SD. The utopia also transcends the primary ecological concerns of sustainability to incorporate political and social concepts such as solidarity, spirituality, and the equal allocation of resources.

Despite the different definitions and interpretations of SD, regarding knowledge for sustainability, there is an agreement that Agenda 21 is an appropriate action plan for tracking the goals of SD. Indeed, Agenda 21 is “a comprehensive plan of action to be taken globally, nationally, and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts (sic) on the environment” (A Civil Liberties Advocacy Group, 2007). According to Agenda 21, the main actions and contexts to practice sustainable development include two sections:

Social and economic dimensions: (a) International cooperation for Sustainable Development (b) Combating poverty (c) Changing consumption

Patterns (d) Demographic dynamics and sustainability (e) Human health (f) Human settlements (g) Decision making

The dimensions of conservation and management of resources for development: (a) Protection of the atmosphere (b) Land resources (c) Deforestation (d) Desertification and drought (e) Sustainable mountain development (f) Sustainable agriculture and rural development (g) Conservation of biodiversity (h) Biotechnology (i) Protection of the oceans (j) Freshwater resources (k) Toxic chemicals - management (l) Hazardous wastes - management (m) Solid Wastes - management (n) Radioactive wastes - management

As the global sustainable development agenda has evolved, people have increasingly called for more involvement in key decision making that has an impact on their social, environmental and economic wellbeing. Public participation in decision-making was identified as being central to the global sustainable development agenda in the Brundtland Report (WCED, 1987) and is a key concept in the Corporate Social Responsibility (CSR) paradigm (Wilson, 2005). According to Agenda 21, the major stockholders of SD within CSR who can play role include: (a) Major groups (b) Women (c) Children and youth (d) Indigenous people (e) Non-governmental organizations (f) Local authorities (g) Trade unions (h) Business and industry (i) Scientific and technological community (j) Farmers

Finally, it is widely recognized that achievement of economic, social, environmental, intra and inter-generational goals of sustainable development requires an effective social order (governance) and coordinated actions at various levels (individual, organizational, community, regional, national, transnational) (Bachev, 2009). The governing mechanisms that could be effectively used according to Agenda 21 include: (a) Financial resources (b) Clean technology transfer (c) Science for sustainable development (d) Education, public awareness and training (e) Capacity building in developing countries (f) International institutions (g) International legal instruments (h) Information for decision-making

### III. RESEARCH METHOD

Given to the point that descriptive research asks questions about the nature, incidence or distribution of variables and it involves describing but not manipulating variables (Ary et al., 2002), a descriptive research design was used to determine the knowledge level of concepts, contexts, means, and stakeholders of SD among governmental managers in Iran. The respondents comprised 338 managers of seven randomly selected ministries including the Ministries of: Education; Interior; Housing and

Urban Development; Health and Medical Education; Science, Research and Technology; Energy; and Agriculture. The main research tool was a questionnaire. Respondents rated the items identified on a five-point Likert-type scale. The questionnaire was developed according to recommendations by Jabreen (2006) and outlines of Agenda 21, and organized into five major sections. Section I focused on the perceived level of knowledge and perceptions that managers possess concerning SD concept. The second section asked the practical contexts (dimensions) of SD. The third section requested the means and tools of SD. The fourth and fifth sections called for stakeholders of SD, respectively.

The instrument was presented to a panel of experts consisting of managers to establish content and face validity. A panel of managers from Shahid Beheshti University was used to pilot test the instrument. They were administered the questionnaire and the data were used to establish the instrument's reliability. The reliability of the four sections: knowledge of SD concept, contexts of SD, means of SD, and stockholders of SD were found to be exemplary at 0.89, 0.78, 0.81, and 0.88 respectively, all acceptable figures according to Alwin and McCammon (2009). Data were analyzed using SPSS 18.0 for Windows. Descriptive analyses appropriate for the respective scale of measurement were performed on the data including measures of central tendency (mean) and variability (frequencies or standard deviation). Graphics of frequency distributions were generated in Microsoft Excel.

### IV. RESULTS

#### 4.1 Demographic features of the Sample Group

Information was received from 338 managers. The average age of the governmental managers was 43 years (SD=5.2) and they had worked as managers for an average of 18.0 years (SD=7.0). The data on the state governmental managers indicated that 84.6 percent (53 persons) of them were male and 14.4 percent (9 persons) were female. Participants in the present study were drawn from different governmental organizations and ministries. The largest number of managers as respondents concentrated their work in the area of agriculture 20.7%, followed by 16.27% in the area of education. Other respondents were from the Ministries of Interior (13.3 %), Housing and Urban Development (8.8 %), Health and Medical Education (10.35%), Science, Research and Technology (11.83%), and Energy (9.9%) respectively.

#### 4.2 Understanding of SD concepts

The managers' understanding of SD concepts was measured using a set of 10- items. Managers were asked to rate 10 statements using the following scale:

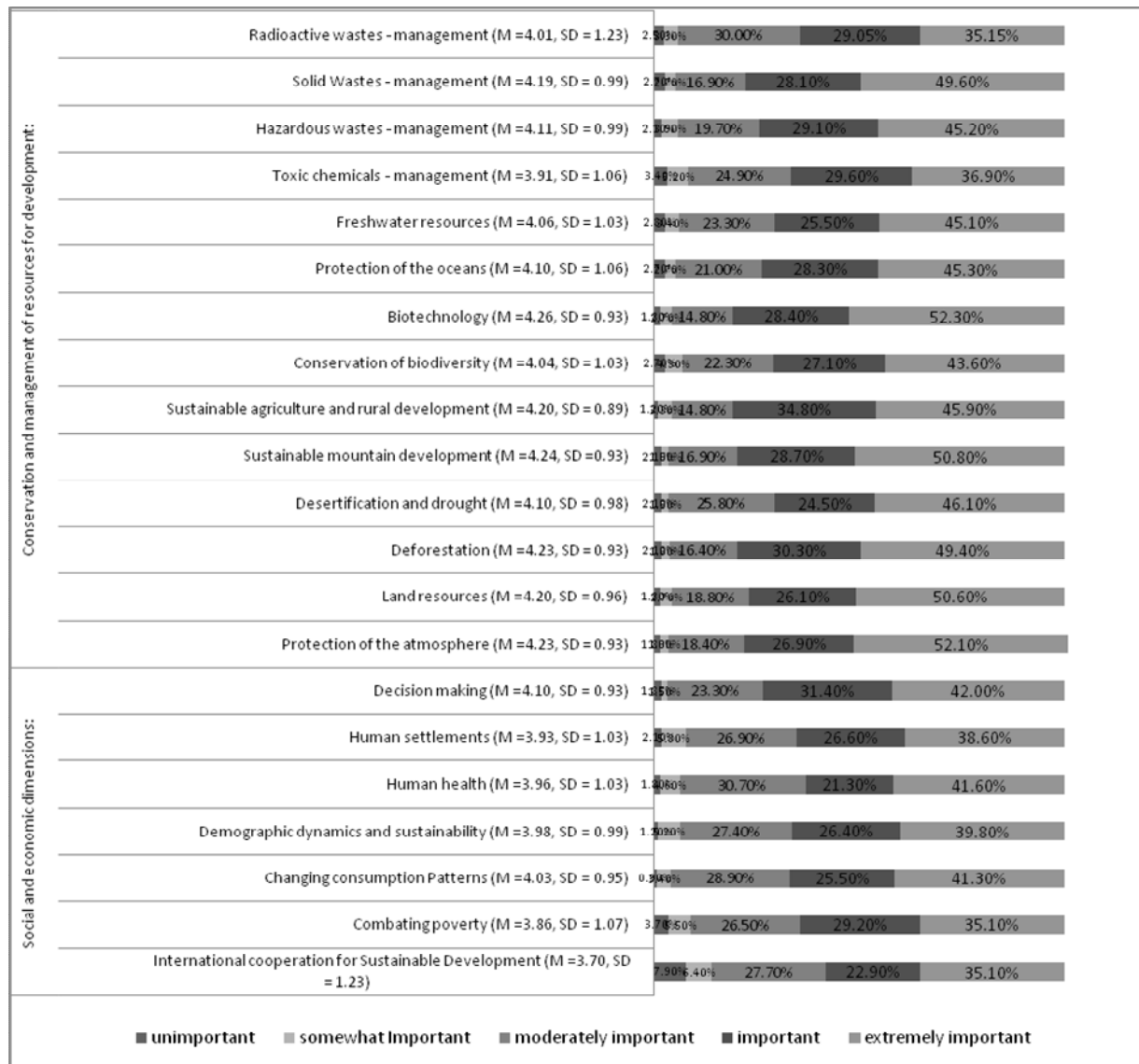


Figure 1. Importance of dimensions of SD

1 = strongly disagree, 2= disagree, 3 = neutral, 4 = agree and 5 = strongly agree. An average score greater than 3.50, would indicate a relatively high level of agreement over SD concepts. Descriptive data on the items contained in the summated understanding score were reported in Table 1. Mean scores on the 10 Likert-type items ranged from 2.64 to 4.32. The highest rated item was “responsible well-being” (M = 4.32, SD = 1.41). The lowest rate item was “ethical paradox” (M = 2.64, SD = 1.21).

Regarding this point, the item of responsible well-being (M = 4.32, SD = 1.41) was the only topic on which managers expressed strongly agreement. As such, respondents regarded themselves as having agreement on the topics of improvement (M = 4.25,

SD = 1.47), equity (M = 3.82, SD = 1.14), natural capital (M = 3.77, SD = 1.34), and integrative management (M = 3.58, SD = 1.43). They also assessed themselves agreeable at the lower level, regarding the other concepts of SD, including: ecoform (M = 3.38, SD = 1.32), utopianism (M = 3.48, SD = 1.541), and stability (M = 3.61, SD = 1.14). In contrast, they were in disagreement or in some extent neutral agreement, regarding the ethical paradox (M = 2.64, SD = 1.21), and global agenda (M = 2.72, SD = 1.03). Finally, using the five-point Likert scale, the average summated score for understanding of the SD concepts construct was 3.51 with a standard deviation of 1.22. In general, in fact, they had a good level of understanding on the concepts of SD.

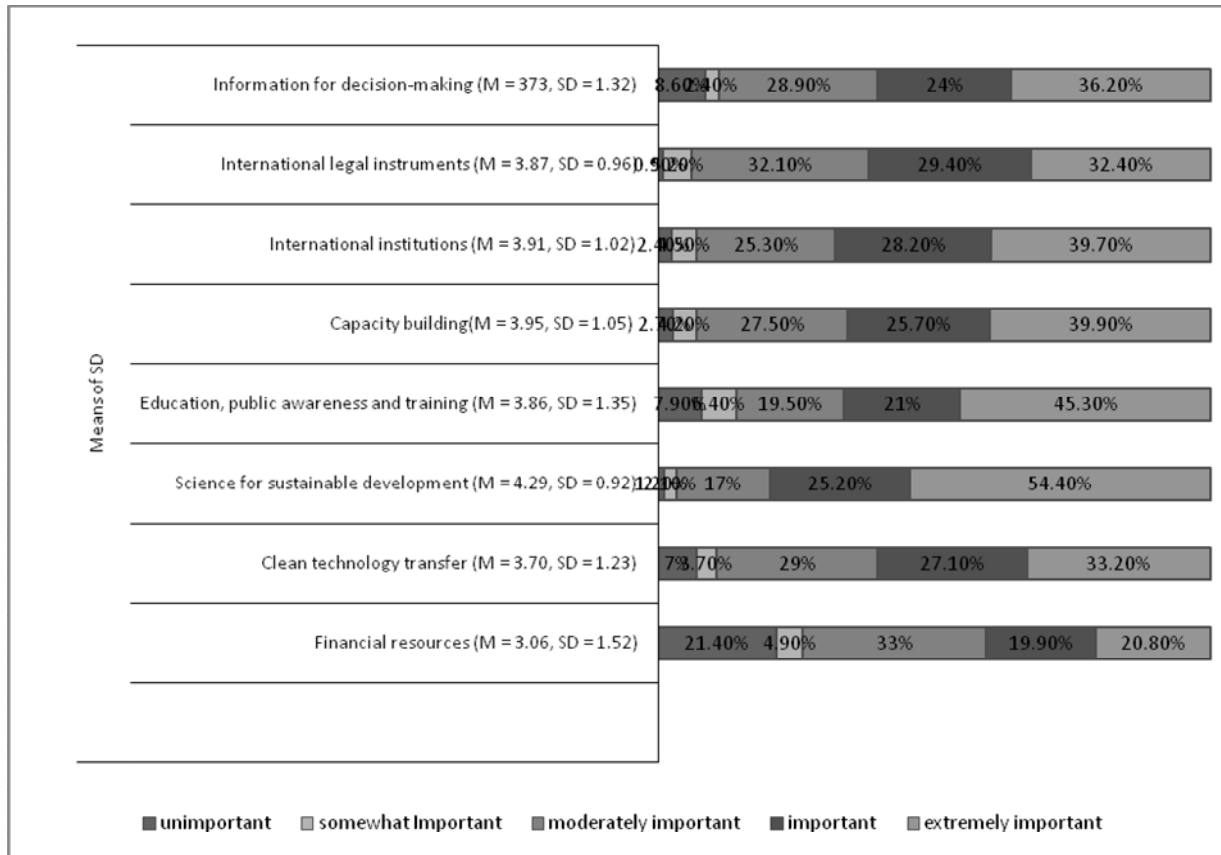


Figure 2. Importance of the means of implementation of SD

**4.3. Perceptions of dimensions of SD**

The overall objective of “sustainable development” is defined in more tangible objectives as “economic”, “social” and “environmental”, which are three primary dimensions of sustainable development (Kelly, 1998; Milne, 1996). Concerning economic and social actions, as shown in figure 1, the mean scores for items of decision making and changing consumption patterns were above 4 on a five-point scale. In this respect, a relative majority of managers (42 % and 41.30 % respectively) perceived that measures of integrating environment and development at the policy, planning and management levels (42%), and developing national policies and strategies to encourage changes in unsustainable consumption patterns has extremely important implications for the efficiency and sustainability of development. The item having the lowest mean score was international cooperation for sustainable development with mean 3.70; only 35.1% of managers stated that it is important to overcome confrontation and to foster a climate of genuine cooperation and solidarity. For other items in this dimension, mean scores ranged from 3.86 to 3.98,

and a relative majority of respondents (ranged from 35 to 41.30 %) asserted the extremely important role of these measures in achieving sustainable development.

Regarding the dimension of conservation and management of resources, the data in Table 1 show that the mean scores for the measures were above midpoint (3.90) on the five-point scale for all measures. Therefore it can be concluded that there was a strong consensus among respondents on the point that managing resources sustainably on the local level is essential for achieving the goal of sustainable development. As though, mean scores for items e.g. protection of the atmosphere, integrated approach to the planning and management of land resources, combating deforestation, managing ecosystems etc. were above 4 and more than 35 % asserted the extremely important of ecological measures to meet the social and economic goals of the local community.

**4.4 Means of SD**

Concerning the manager’s understanding of mechanisms as an instrument, a process or a set of

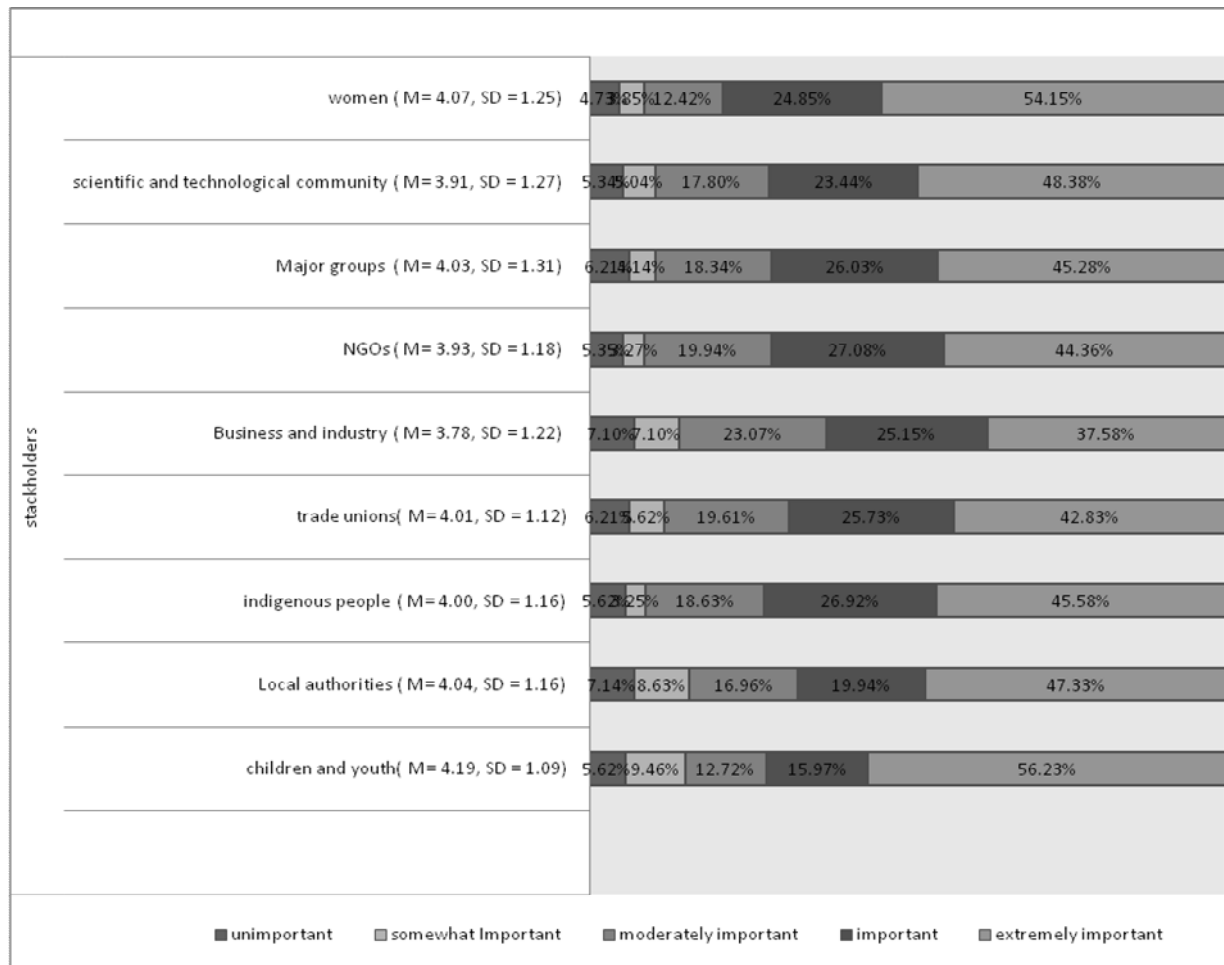


Figure 3: Importance of the role of stakeholders' SD

rules and devises designed to bring about SD goals, percentages, means and standard deviations for individual items are depicted in figure 2. The mean scores on items ranged from 3.03 to 4.29. None of the mean scores were lower than 2.5. Then, respondents had average faith and high faith about importance of the means. The highest mean score was pertain to mean of "science for sustainable development " (mean = 4.29 & standard deviation = 0.92), and in this respect, more than 54% of respondents asserted that the role and the use of the sciences in supporting the prudent management of the environment and development for the daily survival and future development of humanity is extremely important. The relatively lower mean score was 3.06 for the mean of implementation of financial resources, and 33% of mangers perceived that financial resources (e.g. multilateral development banks, relevant specialized international agencies, multilateral institutes for capacity building and technical

cooperation, bilateral assistance programmes, debt relief, private funding, investment and innovative financing) have less importance in comparison with other means to provide the basic resources necessary to push forward a national partnership for sustainable development.

Regarding the remainder of the means of implementation, mean scores ranged from minimum 3.7 to maximum 3.95 above 3.5 on the five-point scale. Then a majority of mangers evaluated these means as a set of rules and devises which are important or extremely important in development process. In this way, nearly 33.2%, 36%, 32.4%, 45.3%, 39.9%, and 39.7% of managers evaluated clean technology transfer, information for decision making, international legal instruments, education and public awareness and training, capacity building, and international institutions, respectively, as very important for effective usage of resources for achieving SD.

#### 4.5. The Stakeholders of SD

The importance of the role of various stakeholders for achieving SD was explored with a set of 9 items using a 5-point Likert scale: 1= unimportant; 2 = somewhat Important; 3 = moderately important; 4= important; 5= extremely important. As shown in Figure 3, the mean scores of the 9 items ranged from 3.0 to 4.016 and none of the mean scores was lower than 2.5 or higher than 4.5. Given this finding, a relative majority of managers believed that all of stakeholders (e.g. "major groups", "NGOs", "trade unions", "farmers", "scientific and technological community", and "indigenous people") are extremely important. The role of "women" and "children and youth" rated by more than 50 % respondents as very or extremely important is more significant. Managers believed that if women have access to land and other resources, education and safe and equal employment, they take apart in national and international ecosystem management and control of environment degradation. Likewise, managers asserted that the involvement of today's youth in environment and development decision-making and in the implementation of programs is critical to the long-term success of SD measures.

#### V. DISCUSSION AND CONCLUSIONS

Since knowledge concerning something represents a form of power (Kujinga and Jonker, 2006), relevant and appropriate knowledge and information about SD gives all the stakeholders, such as managers, the confidence and ability to participate in all the issues and spheres of development. For this reason, this paper has assessed the level of perceptions and understanding the governmental managers have about SD so that, by determining the knowledge gap of managers about SD and suggesting recommendations, it may help to move towards SD in Iran.

Based on the findings revealing that managers agreed with statements about concepts of responsible well-being, improvement, equity, natural capital, and integrative management, and, on the contrary, the findings bear testimony to a breakdown in understanding of the concept of ethical paradox, it can be concluded that managers have a good general level of awareness of "what is to be sustained," i.e. nature, life support systems, and community, and "what should be developed" i.e. people, economy, and society, but they have less awareness of linking what is to be sustained with what is to be developed.

It also can be said that although, managers have a good knowledge about sustainability and development, they are not aware of the epistemological foundation of sustainable development which is based on the unresolved and fluid paradox of sustainability, which as such can simultaneously inhabit different and contradictory environmental ideologies and practices.

Results of research about extremely important measures of integration environment and development in decision-making and change consumption patterns for achieving SD goals indicates that managers realized that there is not a practical program to review and enforce compliance with the laws, regulations and standards. And consequently, it is impossible to develop national policies, strategies and standards to encourage changes in unsustainable consumption patterns. Likewise, regarding the reminder items in environmental dimension of SD, managers viewed measures with an ecological character as important, those which led to maintaining a stable resource base, avoiding over-exploitation of renewable resource systems or environmental sink functions, and depleting non-renewable resources only to the extent that investment is made in adequate substitutes (Harris, 2000). This is probably because of the tracking the SD affairs by the Department of Environment in Iran (Sadough et al., 2009).

Results on the means of SD as a set of instruments designed to bring about a certain outcome (sustainable society) through the interaction of a number of agents each of whom maximizes their own utility, showed that "sciences for SD" is the most important mean for achieving SD. This is perhaps because, managers perceived SD as a scientific process whose realization requires support from scientific and technological community as one of the main stakeholders of SD in Iran. Finally, since the majority of populations in Iran are women and youth, managers argued that they play key roles in the long-term success of SD measures.

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Statement	Abbreviate	N	Mean	SD	Alpha
The epistemological foundation of sustainable development is based on the unresolved and fluid paradox of sustainability, which as such can simultaneously inhabit different and contradictory environmental ideologies and practices.	Ethic paradox	322	2.34	1.21	0.89
The theoretical framework of sustainability advocates keeping the natural capital constant for the benefit of future generations.	natural capital	330	3.77	1.34	
Broadly, sustainability is seen as a matter of distributional equity, specially pertaining to sharing the capacity for well-being between current and future generations.	equity	336	3.82	1.14	
The eco-form which represents the ecologically-desired form of urban spaces and communities is a part of conceptual framework of SD.	eco-form	332	3.38	1.32	
According to the theoretical world of sustainability, the integration of environmental, social, and economic concerns in planning and management for SD is essential.	integrative management	325	3.58	1.43	
SD includes various international issues, such as security, peace, trade, heritage, hunger, shelter, and other basic services.	global agenda	337	2.42	1.03	
SD transcends the primary ecological concerns of sustainability to incorporate political and social concepts such as solidarity, spirituality, and the equal allocation of resources.	utopianism	334	3.48	1.54	
Responsible well-being is at the core of SD.	responsible well-being	319	4.32	1.41	
In SD, nature, life support systems, and community—as well as intermediate categories for each, such as Earth, environment, and cultures— have to be sustainable.	stability	328	3.61	1.14	
In SD, what should be developed; are: people, the economy, and society.	improvement	325	4.25	1.47	

Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree

**Table 1:** Governmental managers' understanding of SD concepts.

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