

The Role of Universities in Sustainable Development

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Abstract: Sustainable development is a concept which entails that economic development needs to be maintained without any harm to the environment. In addition sustainable development is a sort of development which helps today's generation to meet their needs without risking those of the future generations. In the light of such a view, using the natural resources effectively, reducing the waste amount to a minimum level, and recycling the resources, needs of the future generations will be provided and environment be continuously preserved. Sustainable development means programming the present and future life and development in such a way to meet the needs of generations today and tomorrow without exploiting the natural resources but by establishing a balance between the nature and the humanbeings. Sustainable development is also a concept which has its social, environmental, economic and institutional perspectives. The fundamentals of such a concept were first established according to the report prepared by the World Environment and Development Commission in 1987. Behind the environmental problems that arise similarly in many countries lie imbalance between the economy and the environment. Humanbeings increase the standards of life with the help of ever growing science, technology and industry, whereas they do big harm to the nature. The indicators pertinent to sustainable development are the ones used to measure the rate of progress achieved and also to show the extent to which objectives are attained. These are also useful means to facilitate decision-making process to secure sustainable development in environmental, economic and social terms. Universities that play an important role to educate professional people, to carry out academic research, and to assume community service have important responsibilities and duties for sustainable development internationally and nationwide. This article critically reviews the role of universities as one of the strategic components of sustainable development.

Key Words: Sustainable Development, Universities, Structure and Role

Introduction

World population has increased gradually since 1950. The quality of life which is increasing in developed countries brings with fast consumption. The more production means the more consumption, and the more garbage the more contaminated the nature become.

Global warming, the ozone layer (weakening) variety of the herbals and animals, absorption the negative results of being common of the air, water and earth contaminated; and also these environmental problems gaining global dimension mutual interaction of economic and environmental atmosphere, so all these reality of the need of being evaluated together makes it conceal.

The fact that natural resource, are limited is a widely accepted view in the international arena and has turned the sustainable development into a theory.

Sustainable Development

The terms of Sustainable Development were first took in place in the Project of Our Common Future Report by World Environment and Development Commission in 1987. The main reason of the environmental problems happening in the same way, in many countries in the world is the unbalance between the economy and environment. Mankind at the same time is raising up his economical life standards through the developing science technology and industry, on the other hand he is giving harm to the nature.

Sustainable development is one of the most significant concepts of the twenty first century. The sustainable development draws attention that the economical development should be done without giving harm to the nature. The sustainable development is such a development that it meets the needs of present generation's needs avoiding from giving harm to the future generations to meet their basic needs. By the help of this, using the natural resources effectively, diminishing the amount of the waste, enabling the reuse of resources, the

constant protection of the environment will become true and the needs of future generation's needs will be provided. Sustainable development means that planning the life and the development of today and the future generations through keeping the balance between the nature and mankind without consuming the natural resources so that the new generations could meet their ends. Sustainable development is such a concept that has social, environmental economical and institutional dimensions. Primarily sustainable development consists in human, honor, basic human rights, justice, freedom, peace, reciprocal love and respect as well as believing in wisdom rather than power. The strategies of sustainable development can be condensed into six titles such as environment, future, life standard, justice, precautional principles and the whole consideration. (Engel1990;Bigg&Felix;Gough&Scott,2006;Poharyles,2007;Talu,2007;Baykal,2008;Sinemilioğlu,2009;Özyol,8.5.09;Dalal.8.5.09)

The signs of the sustainable development related to the dimensions of the sustainable development are the indicators that measures how much improvement in the sustainable development has been gained and how much has been reached to the planned targets. The indicators of the sustainable development are the most important devices that help us to provide the sustainable development in social environmental economical and institutional ways.

Sustainable Development And Universities

Profession has national and international responsibilities and missions in universities which take on academical searching and ministration to the community in sustainable development. The importance of universities which is one strategic element of sustainable development, mustn't be blinked. University is a strategic agent in improving social, environmental, economical and instituinal indicators of sustainable development in national dimension.

The Social Sustainability and Universities

- Educating people is facal point in social dimension of sustainable development. Improving of quality of life is aimed by constant education. These are social indicators of social sustainable development:
- Equality;(a)poverty (ratio of population of whom live under the poverty frontier , index of income inequality , the ratio of unemployment) (b) gender equality (the average of the ration of female employee earning to male employee earning)
- Health; (a) the condition of alimentation (the condition of alimentation of children)(b) death ratio of children under 5, life expectation in child-bearing) (c) the conditions of hygiene (the ratio of population taking enough dirty water waste ministration) (d)drinking water (the ratio of population taking basic health ministration, the vaccination against contagious child pathos, the ratio of using of methods of birth control)
- Education;(a) education level (the number of primary education grads) (b) Literacy (the ratio of adult literacy)
- Settlement ;(a)settlement conditions (life area for a person)
- Security;(a) crime (the crime recorded for 100,000 people)
- Population;(a) changing of popularity (the ratio of increasement of popularity)
- Training of people in society,taking advantage of health ministration is so important. Universities take on an important mission by co-operating with other official, individual education institutions in training forever of people in society.But it is not possible to say that this co-operation is enough.Additionally, universities having medico faculty and explarotary-technic hospital take on an important mission in taking basic and advanced health ministration to people in society away.

Environmental Maintenance and Universities

The indications related to the environmental dimension of continuing development which emerges in parallel with technological development are up to the very critical and vital level. It is necessary to give much more importance to the natural sources which are renewable and not to consume the ones, which are not renewable, entirely. Especially living natural sources should be saved from extinction and being used up. Those living sources' being consumed as a purpose of nourishment unconsciously by people causes corruption of ecological balance by facing those living creatures to extinction. Here, either renewable or not, the effectively usage which can enable every natural sources' maintenance is the main goal. The environmental indications of continuing development (Nemli, 8.5.2009; Özyol, 8.5.2009):

1. Atmosphere; (a) climate change (emissions of hothouse gases), (b) corruption of ozone layer (consumption of the matters which damage the ozone layer), (c) air quality (ratio of air pollution in cities),

2. Soil; (a) agriculture (plantation fields, usage of fertilizer, usage of agricultural chemicals), (b) forests (percentage of heavily forested areas, intensity of cutting the trees), (c) loosing top soil and becoming desert (fields affected by turning into desert), (d) urbanization (wideness of settlement of urban areas),

3. Oceans, seas and shores; (a) coastal regions (ratio of alga's being intense by the shores, ratio of population living in the coastal regions), (b) fishery (ratio of important species hunted yearly),

4. Water; (a) amount of water (ratio of yearly usage of groundwater), (b) water quality (level of organic material in the water),

5. Biological variety; (a) ecosystem (ratio of important ecosystems, ratio of fields under control), (b) species (presence of important species)

The importance given about issues related to environmental maintenance such as respecting the nature, reducing the pollution, protecting the species, enabling the ecosystem variety etc. has increased nationally and internationally. Universities have contributed a great deal to increase the sensitivity of people about environmental protection by both sharing the results of scientific studies that they have done and acting together and collaborating with the other environmentalist organizations. Universities should be more active for this issue.

Sustainable Economy and Universities

The basis of sustainable economy is based on the fact that it's limited to the sources in nature. The dimension of sustainable development is production consumption and Gross National Product (GNP) per person. The indicators of sustainable economy are the followings:

1) Economic structure:

a) Economic performance (gross domestic product per person, rate of investments in Gross Domestic Product)

b) Commerce (the balance of payments at property and service)

c) Financial position (the rate of debts to G.N.P.; external assistance that's taken as the percent of G.N.P.)

2) Models of Production and Consumption:

a) Consumption of stuffs (density of the use of stuff)

b) Use of energy (annual consumption of energy per person rate of the use of renewable sources of energy)

c) Production and direction of waste material (production of solid waste materials of industry and municipality, production of dangerous waste materials, direction of radioactive waste materials, recycling and reusing of waste

Technoparks which were opened with the cooperation of university-private sector provide association of industry-university and indirectly the development of structures of production in the direction of protection of natural balance at economic sustainability. However, today technoparks which were opened with the cooperation of university-private sector aren't enough.

Institutional Sustainability and Universities

The institutional dimension of sustainable development depends on a strategy. The strategies, which are applied at the direction of the decisions that are concerned with the institutional dimensions of sustainable development directly affect the other dimensions, the direction and the success of sustainable development. The institutional indicators of sustainable development are:

1) Institutional frame:

a) Strategic sustainable growing applications (national sustainable developing strategies)

b) international cooperation (the applications of signed global agreements)

2) institutional capacity

a) Access to knowledge (the numbers of internet users-1.000 per person)

b) substructure of communication (the numbers of telephone lines-1000 per person)

c) science and technology (as a percent of GSMH research-development (Ar-ge) expenditures)

d) being prepared to natural disasters (casualties and economical losses which are caused by natural disasters)

In the gross of National Outcome, the portion of research-development is nearly %2.60 in USA, %2.30 in G7, %2.15 in OECD, %1.73 in the countries of European Union (Gümüş, 1.4.2008; TUIK 1.4.2008) Universities contribute to institutional sustainability by making especially research development studies. If the universities take the important parts of the portion which is separated from GSMH for research-development, important sources will be provided for both institutional sustainability and economical sustainability.

Self-awareness of "Sustainable development" and the Universities

Individual and foundational awareness in sustainable development is essential in regards to reaching the suggested aims. Foundational awareness and individual awareness are like two halves of a whole. However, initially individual awareness has to be realized in order to realize foundational awareness. Otherwise, not only

will the support and individual attendance of foundations to sustainable development activities be sufficient, but also there will be no deliberate and permanent pressure to trigger the activation of foundations on sustainable development.

Universities are on the top list of foundations which will take the responsibilities and achieve it about rising awareness on social, environmental and foundational sustainable development. Both the qualified staff of them and the respect of society towards them will make it easy to realize this role. Because of this, universities must be the pioneers with their activities to raise awareness among society on “Sustainable life” and to make individuals to gain integrative perspective.

Conclusion

Sustainable development is not an aim that could be achieved by foundations one by one. Cooperation of foundations at both national and international levels and especially their coordination are necessary. Nongovernmental organizations, private sectors, public sectors and universities should be in cooperation and coordination for sustainable development.

Universities should be a more effective strategic (determinant) factor in improving the indicators of especially social, environmental, economical and institutive sustainable development in a national dimension. Additionally, universities should improve individual’s awareness thorough community oriented activities while social, environmental, economical and institutive sustainable development is in effect. Universities should work by comprising realistic, modernist and effective new strategies with other foundations in cooperation and coordination for achieving their roles in sustainable development. According to experimental results, it is necessary that changes in strategies be put into practice on time and functionally.

Universities should undertake the lead in any sort of education given about sustainable development (Charon& Montburn, 2009). Renewable and unrenewable natural resources should be advertised with the aid of education programs under the guidance of universities. Also, optimum usage of all resources should be provided by finding alternative energy resources. People should learn development without risking the future while they provide their needs without harming the environment.

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