

## Responses of University Students Related to Environmental Problems: A Case Study of Ege University (Izmir-Turkey)

Bahriye GÜLGÜN<sup>1\*</sup>, Serpil ÖNDER<sup>2</sup>, Erden AKTAŞ<sup>1</sup>, Funda ÜNAL ANKAYA<sup>1</sup>

<sup>1</sup> Dept. of Landscape Architecture, Agriculture Faculty, Ege University, Bornova, İzmir, TURKEY

<sup>2</sup> Dept. of Landscape Architecture, Agriculture Faculty, Selcuk University, Konya, TURKEY

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**Abstract:** In this survey the environmental problems in the World and Turkey are mentioned and the given importance, behaviours, sensitivity and aspects of university students towards environmental problems are handled and determined. The aim of this study was to determine awareness, sensitivities and behaviours towards environmental problems of Ege University students. For these reason 18 tools are determined and it used to test over 227 students who study on 9 different faculties in Ege University.

As a result of this survey global warming is the most important environmental problem with 44, 53% in the World, while air pollution (24.22 %) and water pollution (15.41 %) were mentioned as the most important environmental problems in Turkey and in Izmir respectively. Education for raising the awareness of public (59.50%) is most suitable solution for environmental problems, the importance of these was mentioned and the most effective way to aware public was chosen as TV-radio shows (66.55%). And also contribution this survey, it is determined that young generations are not insensitive towards environmental problems, because they watch programs about environment, use public transportation moreover they use environmental friendly products and mediums.

**Key words:** *Environment, awareness, response, education, questionnaire, university*

### Introduction

Humans constantly derive benefits from the environment to provide for their needs, and environment has basically been used to expand our habitat and to improve our quality of life. The natural balance was broken down because of over use of natural sources by humanity and thus serious problems occurred which called environmental problems, source ecological, economical, technical, sociological and political origin have vital importance. Environmental problems have gained international extent as a result of technological progress and industrialization achieved in the recent decades.

The rapid increase of population, global warming and climate change, destruction of natural vegetation, degradation of soil, agricultural lands proportion for per person, decreasing of water sources, depletion of atmosphere, decreasing of biodiversity could be named as major environmental problems, appear to be the most urgent issues which are necessary for the support and contribution of all humanity (Kibert, 2000; Çepel & Ergün, 2007). As a result of the increasing environmental problems, environmental concerns have dramatically increased among the public over the last few decades (Décamps, 2000; Thapa, 2001).

Today unless taken precaution the future of our world is not comely. After looking to the issues those are happened the results are dreadful. Every year 100 animal and plant genus will extinct. Also because of unhealthier conditions and starving 13.5 million children will die.

From now the 40% of world population suffered from drought. Tropical forests are destroyed and desertification expanded rapidly. Some estimated threatened are; in 20 years 20% of agricultural lands will be lost by erosion. Between 20 and 40 years over 40 million people will be dead because of skin cancer (Özey, 2001). However the most important task is to use the

\*Corresponding: E-mail: bahriye.gulgun@ege.edu.tr, Tel: + 90 232 388 4000 ext:2616, Fax: 90 232 388 1864

resources while protecting the environment since environmental issues will be among the most important key factors of human life in future.

As far as concern the rapid population growth on the World, at the last 20 years the population increased 2 billion and it is estimated that in 2010 it will be 7 billion (Brown, 1994). In 1927 the population was 13 million in Turkey and in 2000 it was 67 million. The increasing average is 2% per year and the population doubled nearly in 32-33 years. Approximately half of the population is comprised of young people under the age of 24 years (Anonymous 2000).

Environmental education is one of the most effective strategies for increasing public environmental perception, knowledge, awareness, and attitude. If the peoples' perception, knowledge, awareness and attitude toward environmental issues are high, it means that the peoples' environmental literacy rate is also high. Increasing environmental literacy will lead to a change in behaviour or action. Determining what people know about the environment, how they feel about it, and what actions they take that may help or harm the environment is required to establishing the sustainability of a community and to protect the environment (Anonymous, 1995, Thapa, 2001). Since the universities educate young generations who are expected to be the future leaders in many different areas in the society and who will be the decision-makers, the role of the Universities in the environmental training of the public is huge. The future decisions of these young generations will affect the sustainability of the human existence, their approach and activities will have important consequences for the environment (Wong, 2003; Talay *et al.*, 2004; Budak *et al.*, 2005) For this reason, universities bear profound responsibilities to increase the awareness, knowledge, technology, and tools to create on environmentally sustainable future (Corcoran, 2004).

Based on the logical approach described in the previous paragraph, it is an important task to analyze the level of awareness and behaviour attributed to environmental issues by university students since it can present significant results that can be used while making the necessary decisions about the education of the students on environmental issues. With the limitation of water and food sources at world in the future it is possible to have alimentary problems. Furthermore insufficient transportation and infrastructure, over use of resources could compose other big problems.

Global warming is the duration of increasing temperature systematically. The climate changes would be happen in this way .According to temperature rising water vaporization are rising and also the rain and air circulations have changing.

Soil is the non-renewable and one of the important resources that provide 99% of our alimentary. And also it is filter and depot on water that all alive need to be alive. Moreover it is source of industrial raw materials, minerals, mines and forestry products. According to all these reasons it is not only elementary for agriculture but also for the industry. So much the worse is that as much as important resources are destroyed and the amount of soil lessened day by day.

The reasons that the loss of soil with erosion is much more in Turkey are; Slopes of lands, soil structure, destruction of vegetation and the suitable climate will lead the erosion. And also human faults like defective land uses, using wrong agricultural techniques are effective. Eventually the losses of soil contribute some sociological and economical damages. With the loss of live topsoil the infiltration capacity of surface water would be decreased. So the considerable portion of rain water will be lost by the surface flow before it is infiltrated by water. Heavy rain turns into flood, than rain water could not be stored in soil, the fertility of soil decreased, water sources decreased, starving and drought could be start. This contributes to increase of emigration from town to cities. And cause some sociological problems.

The ozone layer absorb and lessened the amount of the destructive (wavelength: 280 – 320 milli micron) ultra violate radiation that reached to earth. The 9% of all sun radiation only 2% of ultra violate radiation reach to earth. That is so important because if it was more that will probably cause same damages.

Decreasing biodiversity of genetically different genus and in rich populated ecosystems is also an environmental problem. Biodiversity provide some advantages like economical,

ecological, and supporting alimentary and raw materials for industry and have important role on tourism are some of them (Çepel & Ergün, 2007).

Formerly cities are the sign of development but after time within industry – population and emigration they would be sources of environmental problems according to ecological deterioration. The rapid civilization and expansion on cities in Turkey like the world take environmental problems herewith. Especially pollutions on natural resources for alive like air, water and soil would threat them. However as a result of haphazard urbanization, deprivation of green areas can be seen and provide to be unhealthy conditions for humans (Kaya, 2005).

After the change of the world by humanity to make it suitable for himself contribute environmental pollutions and problems which are in agenda whether in world or Turkey and being serious issues. To cursory use of natural environment will be resulted to have problems with impossible compensation situation. Day by day with the help of science and technology human's irresponsible and inconsiderate behaviour to use of nature be extraordinary size (Gökdağ, 1994).

Uncontrolled use of CO<sub>2</sub> and the other gas emissions those are causes greenhouse effect we face of the climate change and rising of the temperature. Moreover our world turns into a global greenhouse and unless taken precautions in 2100 the temperature will increase between 1 °C and 3.5 °C. To live without environmental problems climate should be balanced. Providing balance the increase of temperature on atmosphere should be stopped. Due to use of fossil fuels the CO<sub>2</sub> propagation in air reached 1 billion tons per year. Oceans and trees absorb CO<sub>2</sub> but half of the forests were destructed at last 50 years by people. The CO<sub>2</sub> emission which oscillates to atmosphere is 6 times more than trees and Oceans could absorb per year. The bad part is instead of decrease the use of fossil fuels it is increased between 1950-1997 the use of fossil fuels increased 4 times, timber use 3 times, paper use increased 6 times. Especially in China it is expected that the huge industrial act supported with fossil fuels contribute warm up the atmosphere (Kaya, 2005). Mentioned negativities threatened our worlds. In the world Turkey comes ahead especially with its unbalanced nature therefore having heavy erosion (Kaya, 2005).

It is clear that only one week in a year is not enough to discuss environmental problems under the name of "environment week". Also it couldn't passed over easily just saying do not throw your wastes around, do not pollute sea, protect green areas etc. Environmental education is so important. All part of society should be educated about environment and permanent positive behaviour changes should be earned. Active participation should be the main aim in solving environmental problems. Today problems that are faced of our country is mainly resulted from lack of knowledge. Human who are unconscious couldn't cognate that others will use the same world. Whereas the world is not inherited to us it's a deposit that must protect and assigned to future generations (Kaya, 2005).

So much the worse although having young population in Turkey we cannot mentioned about systematic environmental education before school. This becomes from defective environmental educated parents and educators and also lack of sources, communication and coordination problems. To establish sustainability on society, the important point is to know what human think, how much they know about environment or which behaviour could damage or helped to the environment (Önder, 2006).

Universities should be foundations that educate people who are in charge of some positions in the future and give environmental awareness and good environmental education. Young generations who have conscious environmental education will give respectful to nature, environment consequently to humanity. According to these communions in this research, university students are considered. And student's, who are doing bachelor studies at Ege University, points of view to environmental issues, paid attentions and delicacy amount were investigated.

If we glanced to previous research close to this study;

The aim of research “University students’ manner to environmental problems” by Özmen *et al.* (2006) is to determinate the factors that affect the students’ manner. As a result of this study declared that 65% of students say that they are sensitive to environmental problems but 84.9% of them have never attended an activity which organized by environmental foundations. Also who live in city centre longer than other and also whose parents have university degree and have less than 3 brother / sister are more sensitive to environmental problems and say that it is necessary to give environmental education at high school these students get high mark from “Environmental Manner Scale” average. As a result activates groups who are sensitive to environmental issues trainings should be planned.

In study called “Investigation about Environmental facts in Higher Education” people who have university degree are determined by their environmental knowledge and as a conclusion environmental phenomenon tried to expand it is tried to expand with giving solutions (Yücel & Morgil, 1998).

According to research called “Candidate Teachers Manners to the Environmental Problems” by Şama (2003), it is aimed that to determinate the attitude of candidate teachers about their environmental manners. In these research students’ manners and their gender, level of class in which they are educated, location, grade of education, occupation and income of their parents tried to evaluate by scale that developed.

Yılmaz *et al.* (2002), aimed that to give solutions in according to determination of secondary and high school students’ knowledge about environment in their research. For this purpose in 1998-1999 educational year the university of Hacettepe, faculty of education perform a questionnaire to 240 students who studied on chemistry education division, in 2000-2001 educational year perform a questionnaire on 6 secondary education school with number of 228 students in Ankara and Beypazarı and in 2000-2001 perform 3 different questionnaire on 153 students who studied at university of Hacettepe, faculty of education, division of chemistry education.

Consequently of this work it is mentioned that the environmental education is not enough and students from chemistry education have more knowledge than the other and by a majority they get them from visual and written media. Students’ knowledge and recognition of environmental problems are increased during to three year ongoing study.

According to study called “Manner of future’s teachers’ about environment and environmental problems” which is done by Erol and Gezer (2006) declared that especially recognition the important role of environmental education, and the need of setting budget to deal with these problems. Also it is mentioned that the environmental education comes out in 1960 and every 10 years 70s, 80s it is developed rapidly. In world conference that was realized in 1972 in Rio De Janeiro its recognize that environmental pollutions related education and now it is clearly comes out. From this point of view, the purpose of this study is to determine the awareness of the undergraduate students’ at Ege University about the environmental problems and to analyze and understand the behavioural characteristics of the students about the solutions.

With reference to the above, this study has three distinct goals:

- To determine the general socio-economic profile of Ege University students.
- To determine their knowledge of, and behavioural characteristics towards.
- To make recommendations based on the findings.

## Material and Method

This study was implemented during the spring semester in 2007 among students of Ege University. Ege University is one of the biggest, essential and crowded university in Turkey. Ege University consists of 11 faculties, 5 school of higher education, and 8 vocational school of higher education. Also Ege University has 39181 students and 7504 employee (3148 Academician, 4356 officer).

During this study standard survey forms and spot survey is used as method. The used questionnaires are implemented as voluntarily to students and it takes 15-20 minutes to answer. The number of students was determined according to simple casual sampling method in which every individual has equal weight and chance in sampling. Also with this side, the method called unlimited sampling method (Çiçek & Erkan, 1996).

According to this method, 227 determined as a participant number. The number of participants' and their faculties are mentioned below;

The Faculty of Agriculture 27, The Faculty of Science 31, The Faculty of Medicine 40, The Faculty of Dentistry 37, The Faculty of Engineering 19, The Faculty of Pharmacy 23, The Faculty of Fisheries 17, The Faculty of letters 15, The Faculty of Economics and Administrative Sciences 18 .

The used questionnaire in the survey was designed by experts from environmental engineering and education faculty of Çukurova University and Selçuk University (Önder, 2006). The questionnaire consists of 18 questions and three main sections:

#### **General characteristics of participants;**

This part includes 5 questions to be gathered basic information about participants like gender, age, income etc.

#### **Measurement of awareness;**

In this part student paid attention and perception about some environmental issues are determined by asking 4 questions.

#### **Determination of behaviour;**

With this part students' behavioural characteristics and their general inclination to environmental conservation are aimed to determinate by asking 9 questions.

To analysis, interpretation and evaluation to the data SPSS 11.5 software were used.

### **Results**

#### **General characteristics of participants**

This part of the survey aimed to determinate the general characteristics also their age, gender, families' monthly income, the spent years at university (freshman, sophomore, junior and senior) of participants. According to table-1 52.42% of participants are female (119 people), 47.58% of them are male (108 person). And majority of participants were between the age of 21-23 (41.85%) 17.18% of them were between 24-26 and 3 % are more then 27 years old. The majority of participants were freshman 39.64 % the minority of participants were sophomore 9.69%. Family income 42, 73% of participants families were between 1000-3000 YTL and families got 500 YTL and less income of participants were 7, 04%. The majority lives in metropolitan cities (52.86%), 34.36% of them live in city, 6.16% live in town and 4.84% of them live in village. As it can be seen from the numbers the majority of the participants grown up in metropolitans or cities and their families have high living standards with high income.

#### **Participants' environmental awareness**

In this part to determinate the participants' environmental awareness 4 questions were asked. With the first question 11 frequent environmental issues were given and asked to students which of them are the most serious problem in the world, in Turkey and in İzmir. The results were given in Table-2.

As it can be understand from the table the most serious problem in the world is global warming (44.53 %). The global warming is the fourth serious problem in Turkey (11.5%). The first three problems in turkey are air pollution (24.22%), the second is improper urbanization

(18, 50%) and the third is rubbish disposal (14.97%). According to İzmir the first threaten is water pollution with only little differentiation (0.43%) than mistaken urbanization.

**Table 1.** Students' General Profile (Assessments were given as percentage (%)).

Variables		(%)
<b>1) Gender</b>	Male	47.58
	Female	52.42
<b>2) Family residence</b>	Metropolitan city	34.36
	City	52.86
	Town	6.16
	Village	4.84
	No Response	1.78
<b>3) Age</b>	18-20	38.76
	21-23	41.85
	24-26	17.18
	27<	1.32
	No Response	0.89
<b>4) Year in the school</b>	Freshman	39.64
	Sophomore	9.69
	Junior	11.01
	Senior	37.44
	No Response	2.22
<b>(5) Family's income (YTL) 1.2 YTL=1\$/month</b>	<500	7.04
	500-1000	27.75
	1000-3000	42.73
	3000<	14.97
	No response	7.51

Actually assessment that was for İzmir have close results in Air Pollution, Noise pollution, Water Pollution, Mistaken urbanization, Solid waste disposal and, Global warming. Both for Turkey and İzmir radiation pollution, ozone depletion and soil pollution and loss of farmland got the low value after the evaluation.

In the world mistaken urbanization had the lowest percentage with soil pollution and loss of farmlands which took the second place in Turkey and İzmir. The questionnaire that has done in Konya shows that global warming is the most serious environmental problem again in the world with 27.74% and depletion natural resource is serious problem in Turkey. Also both in Konya and İzmir the mistaken urbanization is the most important environmental problem.

With the second question 11 disaster scenarios were asked to the participants that the world would be faced in the future. And they were asked to give values as following; if they totally agreed give 5, agreed 4, neutral 3, disagree 2, and totally disagree 1. The sum of the values shows that the probability of the scenarios. As it can be shown from the Table 3 the general prospect of students are pessimistic.

The third question asked that what is the most viable solution towards environmental problems and it is clear that with 59.5% participants said it would be "education for raising the awareness of public". Legal regulations took the second place with 14.09% percentage.

The last of this part asked the most effective activity and which of them can be used to attract peoples' attention towards environmental problems. According to table-5 the most effective way is TV and radio shows with 65.55% and the second is Activities of non-governmental organizations (15.85%).

**Table 2.** What is the most serious environmental problems in the world, in Turkey and in Izmir?

(6) Environmental Problem	In the World (%)	In Turkey (%)	In Izmir (%)
Air Pollution	14.53*	24.22*	13.65*
Noise pollution	3.52	7.48	10.57
Water Pollution	4.84	5.72	15.41*
Soil Pollution and loss of farmland	2.20	3.96	6.60
Radiation Pollution	3.08	1.76	3.96
Ozone depletion	13.65*	2.20	3.96
Improper urbanization	2.20	18.50*	14.97*
Depletion of natural resource	8.81	9.69	6.60
Solid waste disposal	2.64	14.97*	11.01
Global warming	44.53*	11.50	13.27

\*The top two most serious problems chosen by the students.

**Table 3.** Which one of the following disaster do you see as the most possible that the world face in the future?

(7) Disaster Scenarios	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	6 (%)
Climate changes, global warming	5.72	4.40	2.64	41.40	44.93	0.91
Starvation and poverty	5.28	3.08	11.01	41.40	3.68	3.55
The need of other energy resources and petroleum products	5.28	3.96	9.25	46.25	29.51	5.75
Water scarcity	3.96	0.91	-	32.15	57.71	5.27
The conflicts over natural resources	5.72	1.76	5.72	32.15	44.96	9.69
The abandoned of using nuclear power	21.58	24.66	15.41	18.06	14.09	6.20
The increasing of importance of the ecological agriculture	4.84	7.92	9.69	36.56	33.03	7.96
Melting of iceberg due to the global warming and rise of the ocean levels in the world which might threaten the habitant	5.72	4.40	5.72	37.44	39.68	7.04
Desertification of the world	3.52	2.20	2.20	42.31	41.85	7.92

1: Totally disagree, 2: Disagree 3: neutral 4: Agree 5: Totally agree 6: No response

**Table 4.** The most viable solutions that can be used towards environmental problems?

(8) Precautions	Percentage (%)
Technological improvements	5.72
Education for raising the awareness of public	59.50
Legal regulations	14.09
Using alternating raw materials in industrial plants	12.77
Monetary regulations (fee etc.)	2.20
No response	5.72

**Table 5.** Which of the following is the most effective activity and can be used to attract peoples' attention towards environmental problems?

(9) Activity	Percentage (%)
Conference and seminars	6.60
Newspaper, book and magazines	5.28
TV-Radio	66.55
Activities of non-governmental organizations	15.85
No response	5.72

**Participation environmental behaviours**

This part consists of 9 questions and aimed to determinate participants' manner towards environmental problems.

As it can be seen from table-6 work voluntarily took the highest value while 9.69% of participant would like to do nothing.

Another question is about are they follow any publication 71.39% of participants said that they do not follow any publication. 14.09% of them always follow publication about environmental problems.

Unfortunately 20.6% of the participants never sort the wastes like paper, batteries etc. on the other hand its good that 27.31% of them sort paper and 27.79% of them sort batteries.

And also 60% of participant which is high percent do not regularly follow TV and radio shows about environmental problems.

It is pleasing that 39.23% of participants not only do not use products that cause ozone depletion but also 31.27% of them use ozone-friendly products.

62.58% of participants said that they prefer to warn polluters personally.

It's interesting that 85.03% of participants are not a member of an environmental organization while 56.4% of them have taken a part of an environmental activity.

**Discussion and Precautions**

The interpret survey's results it can be understood that students glance are pessimistic (Item 6 and 7). But also university students are emotional, threat sensitive and act to solve the environmental problems (Item 10, 12, 14, 15, 16 and 18). Most of them but not regularly follow environmental publications, TV, radio show and also voluntarily be a member of an environmental organization (Item 11 and 13).

Also whether in this survey or other similar environmental awareness and conservation studies by other researcher contribute clearly that the most important fact for environmental conservation is awareness of public. Destroying the environment by polluting or conservation are the most important events that directly concerned by public or future generations. Hence conservation the environment should be concerned by all section on society and participation of them should be provided. Raising the environmental awareness and education must be national politics.

59.50% of the participants indicated that public education for raising the environmental awareness is the most viable precaution that can be taken against the possible environmental problems (Item 8). An education system which raising the active participation and increase the reaction against environmental negativities, moreover make public to think the truth in which public benefits are more important than personal benefits and also it provides to developed thinking and decision power of society.

The environmental education in schools and other educational institutes is an important strategy in achieving environmental improvement because it should not be only given the knowledge but also has to effect of human behaviour (Barraza & Walford, 2002; Walker & Loughland, 2003).

The aim of systematic environmental education is to make public conscious of using natural resources rationally and preventing them from extinction and pollution because of miss-planning, however it provides the regeneration and sustainability of environment.

Therefore it turns society into a positive glance and consistency to provide above mentioned. Environmental education should be discussed in sustainable development and should be detailed with its some attitudes. Except regular education systems it should be extensive that can contain media groups, courses which are for young generations and starter employees (Anonymous, 1997). The importance of visual and pressed media's role of to acquaint public can be seen when somewhere in the world have a environmental disaster which will effect the rest of the world as same as where it was happened.



**Table 6.** The attitudes of the students towards the environmental issues

<b>(10) How would you like to be a part of the environmental activities?</b>	<b>Percentage (%)</b>
Work voluntarily	64.78
Donation	14.53
Extra taxes	4.40
Nothing	9.69
No response	6.60
<b>(11) Do you follow any publication about environmental problems?</b>	<b>Percentage (%)</b>
Yes, always	14.09
Not regularly	71.39
Never	7.04
No response	7.48
<b>(12) Which of the following wastes do you sort?</b>	<b>Percentage (%)</b>
Paper-newspaper	27.31
Glass	5.28
Batteries	27.79
Plastic	6.16
Vegetable	2.20
Metals	3.08
Do not sort	20.26
No response	7.92
<b>(13) Do you enjoy following TV and radio shows about environmental problems?</b>	<b>Percentage (%)</b>
Yes, always	26.87
Not regularly	59.93
No not interested	6.16
No response	7.04
<b>(14) Which of the following methods of transportations do you prefer for environmental protection purposes?</b>	<b>Percentage (%)</b>
Bicycle	11.01
Car	10.13
Public transportation	50.67
Metro	19.82
No response	8.37
<b>(15) What is your reaction against products that cause ozone depletion?</b>	<b>Percentage (%)</b>
I prefer not to buy these products	39.23
No not pay any attention	16.74
I prefer ozone-friendly products	31.27
No idea	6.16
No response	6.60
<b>(16) What is your reaction against polluters?</b>	<b>Percentage (%)</b>
I prefer make formal complaints	7.92
I warn them personally	62.58
Not reaction at all	9.69
I warn people against polluters	13.21
No response	6.60
<b>(17) Are you a member of an environmental organization?</b>	<b>Percentage (%)</b>
Yes	8.81
No	85.03
No response	6.16
<b>(18) Have you ever taken a part of an environmental activity? (garbage collection, planting vb.)</b>	<b>Percentage (%)</b>
Yes	56.40
No	37.44
No response	6.16

From the principle healthy society could only grown in a healthy environment; before school, primary and secondary education students let understood better the environmental problems surrounded, relations between healthy environment and socio-economical and cultural development. This could be only possible with environmental education (Anonymous 1997).

Education intended environmental awareness should start at primarily in fact at nursery school. It shouldn't limited just in environmental engineering at universities it pontificated with other disciplines also sciences indirectly related with environment like law, medicine and economy sciences business management should pay more attention to environmental education.

Printed and electronic media (including the internet) is the main source of information about environmental issues (Geoh-Chin *et al.*, 1998; Schultz & Zelenzy, 1999; Fien *et al.* 2002). The mass media should therefore be used more intensively to facilitate the transmission of environmental information and promote more positive environmental attitudes.

As it can be seen clearly from the survey the most attractive mass publication methods are tv and radio (Item 9). Hence on these instruments the given importance about environmental education should be increased. The collaboration should be strengthened to give public environmental education on tv and radio programs.

For raising the public opinion about environmental awareness and conservation it is crucial that participation of public, collaboration of governmental and nongovernmental foundations, local ministries and an impressive media. They should be widened whether in regional or in national scale which is fateful for rational use of natural resources, prevention of environmental pollution (Anonymous, 1997).

Unfortunately it is thought-provoking in Turkey that the environmental consciousness is not sophisticated even in well educated societies 85.03% of them are not a member of an environmental organization (Item 13). Barely 56.4% of the participants have been in an environmental activity (Item 14).

Member students of environmental organizations are aware of the environmental problems; therefore they present a positive approach toward the environmental issues (Budak et al. 2005). Students should be encouraged to join an environmental organization and taste the joy of making something about the environment and being a part of a charity.

Associated with the subject in Izmir city in the chosen schools it is aimed to given conferences about "recycling solid wastes" and in these specific schools solid wastes start to be sorted separately and the future target is to widen it to all schools (Anonymous 2003).

Besides, related with recycling project for solution of solid wastes some town ministries wanted containers. And also at this towns education studies were done about public awareness and the sorted wastes are frequently controlled.

In Izmir Metropolitan area boxes were located in suitable places for collecting waste paper. These waste papers which are collected especially from schools, homes, and private and governmental corporations hold by tracks within a program. During 10 years, 10 ton waste paper gathered per month. Also with the agreement between metropolitan municipality and Şişecam glass factory in 1988 388 boxes were located for collecting junk glasses and bottles (Anonymous, 2003).

Increasing the public awareness and giving knowledge about environmental problems lasted in our city between 1999 and 2000 education seminars were given in nursery, primary, high schools also it was given in military schools , police schools and driver license courses on their demand.

Subjects related under "Traffic and Environment" such as environment, noise and air pollution derived from vehicles" topics are worked in education courses that "Driver license course teacher certificate" is given in different periods by Izmir city national education directory, in The Chamber of Izmir Tradesmen and Craftsmen .

The IV. Environmental conference organized in Izmir (6-8 November 2000) and as a conclusion in the final report it is mentioned that the "recycling solid wastes project" which is started as a program of "*Üniversitem*" from Ege University would be supported.

With the aim of paying attention to public opinion and to provide active participation competitions and campaigns should be arranged. Such as in Izmir every year in environmental week metropolitan municipality and a local newspaper arranged a campaign called “collection of waste batteries” and give presents in categories (children, adults, schools, private companies) according to collected amounts. Also waste batteries that collected by sensitive citizens are taken by municipality employees from their homes when they notified.

On country level the lack of national environmental plans and malfunction of implementation of reconstruction plans, rapid population growth and emigration, mistaken urbanizations are some of the reasons for unplanned urbanization. The rapid population growth on cities cause raising the squatter’s house and with the low capacity of infrastructure in our city produce more polluting than the nature could absorb. Especially in seashore the adjacent constructions of buildings hinder the air circulation. All these results cause to lose fertile farmlands by setup new residential there.

Environmental problems could occur in places where infrastructures, transportation, water resources are not enough location selection is so important for industrial establishment cheap lands and lack of control fateful the environmental problems in time. Thereof organized industrial regions must be constituted. Environmental Impact Assessments should be done to de-crease negative effects of industrial plants and purification systems and filters should be built and checked for non deduction use (Anonymous, 2003).

The food resources and industrial raw materials are supplied 85% from forests, agricultural lands, pastures and fish beds. The huge loss of forests, erosion, pollution of underground water and oceans by industrial use and pesticides could cause a serious famine in further years (Kaya 2005).

Environmental friendly products that used to conserve environment should be generalize and supported. Therefore blue point and green flag applications should be encouraged (Anonymous, 1997).

Indeed in this survey 39.23 % of the participants do not prefer products that cause ozone depletion and also 31.27 % of them said that they use ozone friendly products (Item 15).

The aim of all efforts for environmental conservation and development is to provide a more safety and healthy environment to all human and alive for living. Grievous to environment, improvers work for environment and preservatives work for environmental are also human. Modern environmental consciousness agreed that living in a healthy environment is a main right of human.

## **Conclusion**

As a conclusion it is clear whether in this survey or other similar works about environmental awareness and conservation studies the most important fact is awareness of public. To do this, it is crucial to have national strategies about environment and increasing the awareness of environment. Also the environmental education should be started at nursery school. Today’s children will be future’s managers. Environmental studies shouldn’t limited just in environmental engineering departments also all related departments like law, medicine and economy sciences etc. must have lectures about environment.

Moreover Visual and pressed media have an important role of aware public about environmental issues. The other important fact is non-governmental organizations. Environmental awareness can be raised with collaboration and raising educational programs on these instruments.

Finally The aim of all efforts of environmental education, conservation, and development is to provide more safety and healthy environment to all human and alive who have to rights to live in safe and healthy world during their life.

## References

- Anonymous (1995) Agenda 21, UNESCO-UNEP, 30 May 2000. Available at: <http://www.unep.org>
- Anonymous (1997) *Turkey's Environmental Atlas-96*, National Educating Printing House, Ankara.
- Anonymous (2000) *Interim Result of the 2000 General Population Census*, Office of the Prime Minister, Republic of Turkey. State Institute of Statistics. Available at <http://www.die.gov.tr>
- Anonymous (2003), *Izmir City Environment Situation Report 2003*, Izmir City Environment and Forest Directorship, Izmir
- Barraza L, Walford RA, (2002) Environmental Education: a Comparison Between English and Mexican School Children. *Environmental Education Research*, **8**, 171–186.
- Brown L (1994) *World Situation*, TEMA Publication Series:10, Ankara.
- Budak D.B., Budak F, Zaimoğlu Z., Kekeç S. and Sucu M.Y (2005) Behavior and Attitudes of Students towards Environmental Issues at Faculty of Agriculture Turkey. *Journal of Applied Sciences*, **5**, 1224-1227.
- Çepel N., Ergün C, (2007) Temel Çevre Sorunları, Tema Vakfı Çevre Kütüphanesi. Available at [http://www.tema.org.tr/Cevrekutuphanesi/KureselIsinma/Pdf/Em\\_Konu\\_12.Pdf](http://www.tema.org.tr/Cevrekutuphanesi/KureselIsinma/Pdf/Em_Konu_12.Pdf) , Time of access: July 2007
- Çiçek A, Erkan O., (1996) *Tarım Ekonomisinde Araştırma ve Örneklem Yöntemleri*, Gazi Osmanpaşa Üniversitesi Ziraat Fakültesi Yayınları: 12 ,Tokat.
- Corcoran P B, Walker KE, Wals AEJ, (2004) Case Studies, Make-Your-Case Studies, and Case Stories: A Critique of Case-Study Methodology in Sustainability in Higher Education. *Environmental Education Research*, **10**, 7–21.
- Décamps H, (2000) Demanding more of Landscape Research (and researches) *Landscape and Urban Planning*, **47**, 105-109.
- Erol GH, Gezer K, (2006) Teachers' Attitudes toward Environment and Environmental Problems *International Journal of Environmental and Science Education*, **1**, 65-77.
- Fien J, Poh-Ai ITC, Yencken D, Sykes H, Treagust D, (2002) Youth Environmental Attitudes in Australia and Brunei: Implications for Education. *The Environmentalist*, **22**, 205-216.
- Geoh-Chin T., Kim-Eng Lee C. and Chuan G. K. (1998) A Survey of Environmental Knowledge, Attitudes and Behaviour of Students in Singapore. *International Research in Geographical and Environmental Education*, **7**, 181-202.
- Gökdağ D, (1994) Environment in Secondary School Program. *Cogito*, İstanbul, **2**, 47-50.
- Kaya F, (2005) Agri; An Interesting Example To The Cities, Which Have Noticeable Environmental Problems In The Process Of Rapid Urbanization, *Kastamonu Education Journal*, **13**, 193-206.
- Kibert NC, (2000) An Analysis of the Correlations Between the Attitude, Behaviour and Knowledge Components of Environmental Literacy in Undergraduate University Students. Unpublished MS Thesis, University of Florida, USA.
- Önder S, (2006) Survey Of Awareness And Behavior In Regard To Environmental Issues Among Selçuk University Students In Konya, Turkey, *Journal Of Applied Sciences*, **6**, 347-352.
- Özey R (2001) Environmental Problems. İstanbul.
- Özmen D, Çetinkaya AÇ, (2005) Nehir S., Behaviors of University Students Towards Environmental Issues, *Tsk Protective Medical Science journal*, **4**,
- Şama E, (2003) Teacher Candidates' Attitudes toward Environmental Problems, G.Ü. *Gazi Education Faculty Journal*, **23**, 99-110.

- Schultz PW, Zelenzy L, (1999) Values as Predictors of Environmental Attitudes: Evidence for Consistency across 14 Countries. *J. Environ. Psychol*, **19**, 255-265.
- Talay İ, Gündüz S, Akpınar N, (2004) The Determination of Environmental Awareness of University Students. A Case Study: Ankara University, Turkey. *Int. J. of Environment and Pollution*, **21**, 293-308.
- Thapa B (2001) Environmental Concern: a Comparative Analysis between Students in Recreation and Park Management and Other Departments. *Environmental Education Research*, **7**, 39-53.
- Walker K. and Loughland T, (2003) The Socio-Cultural Influences on Environmental Understandings of Australian School Students: A Response to Rickinson. *Environmental Education Research*, **9**, 227-239.
- Wong KK, (2003) The Environmental Awareness of University Students in Beijing, China. *Journal of Contemporary China*, **12**, 519-536.
- Yılmaz A, Morgil İ, Aktug P, Göbekli İ, (2002) Knowledge of The Secondary School And University Students On The Environment, Environmental Concepts And Problems And Suggestions, Hacettepe University, *Journal of Education Faculty*, **22**, 156-162.
- Yücel AS, Morgil FI, (1998) A Research of Environmental Facts in Higher, Hacettepe University, *Journal of Education Faculty*, **14**, 84-91.