ECO-Center needs analysis in Turkey

National report

1.   Current environmental status and sustainable development in Turkey

1.1. Information about Turkey's current status regarding the environment

The government of Turkish Republic is making important changes in its structure, laws, institutions and the operation of the institutions with the aim of full membership to the European Union (EU). In 1980s, in the context of European Union harmonization process, issues related to environment were negotiated and the necessary legal arrangements were made. Turkey has important environmental problems. It is ranked 92nd according to the Human Development index value.

One of the major problems related to environmental education and education for sustainable development in Turkey is the lack of proper educational resources. It is critical that teachers are well informed on these subjects and well equipped with the necessary educational resources. Although non-governmental organizations (NGOs) prepare their own training set, there is a need for more comprehensive training set. Several studies conducted at universities reveal the impact of project-based trainings on trainers.

It has been found that education level of adults in the issues related to environment and sustainable development is not adequate. Although the ones who have sufficient level of awareness try to raise the awareness of their children with their own effort, their number is very low. Hence, trainings should be provided for parents at schools as well and their interaction with their children on these issues should be ensured.

Additional trainings for environmental and sustainable development have been widely practiced. However, these trainings are based on volunteer trainer effort more in state agencies. Therefore, it is essential that especially teachers and parents, shortly adults made aware of these issues. There are many studies conducted for this purpose in Turkey. Some of the projects carried out nationally are as follows:

A. Environmental education project

A collaborative environmental education project, developed by Anadolu University and TETRA-PAK (an international private company specialized in food safety and packaging), was put in to practise, in 2004, with the aim to improve students' acquisition of the habit of living in a clean and healthy environment, protection of the environment and conscious consumption of natural resources and energy. Academicians from Anadolu University have been commissioned to provide training within the scope of the project [1]. Six districts of

Istanbul were chosen as the pilot area and it was practiced in 270 primary schools in these districts. Seventeen education providers for educators were trained in the subjects within the scope of the project.

B. Clean sea (ALIPOT) project

The project has been practiced in 31 primary schools in İstanbul by Turkish Marine Environment Protection Association since 2002. With the aim of preventing the contamination of the sea the target population of the project comprises of primary school students, teachers and administrators in the project schools. Both visual and aural hands-on practices are carried out on cleaning the seas. The project has been practiced in Istanbul, Antalya, Izmir and Balikesir and also it was extended to all coastal provinces in September 2004 [1].

C. Basic disaster awareness training project

The project was prepared by Bosporus University's Kandilli Observatory and Earthquake Research Institute (KOERI) in cooperation with the Directorate of National Education. The target population of the project consisted of primary school students, teachers and parents. The goal of the project was to create basic disaster awareness. The project was conducted in 50 provinces. In this context, 250 teachers were subjected to distance education. One hundred teachers that were selected among the teachers, who got training, were put on training to be trained as formatter at KOERI. Leader teachers will be trained at schools through these teachers. Other teachers, students, parents and school staff will be trained by the leader teachers at schools [1].

D. "Greenhouse education" Project at Boarding and Pension-type Primary Schools

The schools in Ankara were chosen within the context of the Project. Preparatory studies of the project were conducted by Ankara Directorate of Agriculture in cooperation with the Directorate of National Education. The project, which aimed to provide students with training on safe food production, modern agricultural techniques and hands-on agriculture education and to encourage families that live in rural areas by being a model through students to establish their own business was accepted by the Directorate of National Education and United Nations Food and Agriculture Organization (FAO) and put into practice in 2004. Greenhouses were established in three schools mentioned within the framework of the project. Watering and planting works were completed in the greenhouses that were built. The established greenhouses were supported by students, parents and also the surrounding

community as school application garden that can be built in primary schools. Hands-on agricultural trainings are going on in the greenhouses [1].

International Projects

A. Global Learning and Observation to Benefit the Environment (GLOBE) Program

Turkey program coordinator is the Ministry of National Education Directorate of Foreign Relations [2]. Global Learning and Observation to Benefit the Environment (GLOBE) Program beneficiaries is a worldwide network consisting of teachers, students and scientists. The purpose of this project is to get more information about the environment, and to collect data like the amount of rainfall, maximum and minimum temperature, cloud cover, cloud types, the amount of acid in ground water and rain water. Next, the students send all the data collected to the centre of GLOBE in the USA and share the results they obtain via the internet with other GLOBE members. Seventy-five schools in Turkey are partners of this program [1].

B. South- Eastern Mediterranean Sea Project (SEMEP)

South- Eastern Mediterranean Sea Project (SEMEP) is an acronym formed from the initials and is an international environmental education project that was approved in the 27th General Assembly of UNESCO, which is a subsidiary to the United Nations. Turkish owner of the project is the Ministry of National Education and Ministry of Environment supports the project. 60 schools in Turkey are partners of this project. 24 countries including Bulgaria, Romania and countries around the Black Sea as well as Turkey participate in this project. With the approval of the Ministry of National Education, the national coordinatorship of SEMEP Project has been carried out by Akdeniz University Environmental Issues Research and Application Centre since 1995 [1].

C. Eco-Schools

More than 4400 schools from 53 countries are involved in the project. The international coordination of eco-schools project has been carried out by the International Foundation for Environmental Education (FEE). Eco-schools project is a project that is applied to provide environmental awareness, environmental management and sustainable development education at primary schools. The Turkish coordinatorship of the project is carried out by the Foundation for Environmental Education in Turkey. The project has been practiced in a total of 121 primary schools located in various provinces. Within the scope of this project, the schools that fulfil the criteria that the Foundation for Environmental Education identified and that are applied in other countries are rewarded with a green flag award [3].

D. Forest projects at schools

The project was prepared under the coordinatorship of the Foundation for Environmental Education in Turkey, and the cooperation of Ministry of National Education, Ministry of Environment and Forestry and relevant Non-Governmental Organizations. The project has been practiced by the name "Learning about Forest (LeAF)" under the coordinatorship of the International Foundation for Environmental Education in many countries around the world. The project aimed to instil love of forest, teach the benefits of forests and to raise a conscious community by creating awareness in this regard. The project was put into practice in selected primary schools in Kastamonu and Sakarya provinces in 2003 [1].

E. Great Volga river route project

The main purpose of the project which involves 18 countries neighbouring the Baltic Sea and the Black Sea is to direct the efforts for the protection of sustainable development and of world heritage and to improve transnational relations. The national coordinator of the project is Professor Dr. Celik Tarimci, a faculty member at Ankara University. The project that was launched in 2004 was completed at the end of 2005 [1].

1.2. Environmental protection policies in Turkey

Environmental policies are designed to help keeping a clean and healthy environment for the well-being of citizens and prevention of the loss of natural resources of the country. Environmental protection policies of Turkey were designed according to the main principals given below:

- The polluter pays
- Solving problems at the source
- Prevention
- Caution
- Entegration
- Subsidiarity
- International collaboration
- High- level protection policy

1.2. 1. Turkey's environmental policy

Turkey has been a part of the United Nations Framework Convention on Climate Change since May 24th 2004. According to this agreement, Turkey acts within the framework of

"common but differentiated responsibilities" in international environmental policies like signatory countries. Turkey's special conditions (in terms of economic, social and environmental indicators) also shape its attitudes in international policies. Turkey's environmental policy can be listed under three main headings, namely International Environmental Issues, Relations with the European Union in Environmental Issues and International and Regional Conventions [4].

Turkey has been playing an active role in international cooperation for the solutions of the environmental problems which have a complex nature and which are encountered in association with mostly socio-economic issues. In order to contribute to the solutions of environmental problems, Turkey has been party to many international environmental agreements both at the UN level and at regional level by considering its national interests and socio-economic position.

Within the scope of the EU negotiations, "Negotiation Position Document on the Environment Chapter" was opened in the Intergovernmental Conference held in Brussels on December 29th, 2009. In the EU Common Negotiation Position Document that was announced, the following closing benchmarks were determined:

1. Turkey fulfils its obligations resulting from the Additional Protocol to the Turkey-EU Association Agreement.

2. Turkey adopts the legislation aimed at transposing the EU's transfer of the horizontal and framework environmental acquis including the transboundary aspects.

3. Turkey adopts the legislation aimed at transposing the acquis in the field of water quality, notably its Framework Water Protection Law; establishes River Basin Protection Action Plans; and makes further significant progress in legislative alignment in this sector by adopting implementing legislation.

4. Turkey adopts the legislation aimed at transposing the acquis in the field of industrial pollution control and risk management.

5. Turkey continues its alignment with the acquis in the remaining sectors of this chapter, including nature protection and waste management, in line with the Strategy Document and completes its preparations for the implementation and enforcement of the EU requirements at the date of accession.

6. Turkey, in line with the Strategy Document, continues capacity building of the administrative bodies and coordination at all levels, including inspection services, and demonstrates that all appropriate administrative structures will be in place in good

time before accession to enable the implementation and enforcement of the acquis in all sectors of this chapter.

With regard to the Environment Chapter negotiations, new environmental regulations are made, capacity enhancement works are carried out, projects and analysis works are conducted [5].

Turkey is at party position in many International and Regional Conventions related to environmental issues. The main ones are as follows:

- United Nations; Framework Convention on Climate Change and the Kyoto Protocol;
- United Nations Convention to Combat Desertification;
- Convention on the Protection of the Black Sea Against Pollution (Bucharest Convention);
- Convention on International Trade in Endangered Species(CITES)
- Convention on Biological Diversity;
- Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal;
- Convention on Protection of the Mediterranean Sea against Pollution (Barcelona Convention) [6].

However, the fact that tools that can be called as legislation or direct controls are used more rather than the direct use of economic tools draws attention in order to protect the environment in Turkey [7].

1.2.2. Development of environmental policies in Turkey

Turkey's political history and correspondingly economic developments can be examined at different stages during the republic period. 1960s were the years when a quest for planned economy and development began, and State Planning Organization (SPO) was established. The first of SPO's two main tasks is to provide consultancy to the government on economic and social issues; and the second task is to prepare long and short term plans to achieve the goals adopted by the government. Following the adoption of the Constitution in 1961 and after a "transition program" during 1962, between the years of 1963 and 1967 "First Five-Year Development Plan" and between the years of 1968 and 1972 "Second Five-Year Development Plan" were prepared [8, 9]. Policies for environmental problems and solutions were not existent in these plans which considered a 15-year perspective in order to ensure sustainable growth and development.

"Third Five-Year Development Plan" which covered the period between 1973 and 1977 and which constituted the third part of the 15-year period became a current issue at a time when political and economic uncertainties began and problems arising from import substitution growth emerged [10]. The distinguishing feature in terms of environmental issues in the plan was the presence of a separate environment section. At this point, major problems of a country like water, air and coasts were paid attention to and the need to examine these as a whole within the planning system were emphasized. In the "Fourth Five-Year Development Plan" between the years of 1979 and 1983, environmental issues were mentioned in both developments in society section and basic policies section [11]. In this plan, it was focused on giving authority to local governments on regulations, projects and implementations in the field of environment.

In the "Fifth Five-Year Development Plan" between the years of 1985 and 1989, basic principles of the solution of environmental problems caused by urbanization, industrialization and modernization in agriculture were put forward [12]. In this context, not only the elimination of pollution, but also the protection and development of resources for future generations to benefit from were dwelled upon. In the "Sixth Five-Year Development Plan" the basic environmental policy adopted during the period of 1990 and 1994 was to ensure sustainable economic growth by protecting human health and natural balance [13]. During this period, in respect of sectors, measures against environmental problems were focused on; for example, the legal basis in issues like energy, mining, petroleum products and nuclear safety was envisaged in relation to environmental and economical values.

"Seventh Five-Year Development Plan" that came up during 1996-2000 years was shaped in a period in which the effects of 1994 economic crisis and "Customs Union" agreement with the European Union membership process determined the political and economic decisions [14]. Approaches to the environment sector together with external debt, inflation and growth issues, wishes for sustainable development, and seeking adaptation to EU Environmental Agreement were the basic facts that were reflected to the plan. Although the seventh plan involves some of the firsts and these firsts are mostly just on paper and haven't had a chance to be practiced, the plan is important in that sustainable development philosophy is decisive during the preservation of natural assets and has environmental priority concerns. While preparing development plans in Turkey so far many specialization commissions were established. The basic task of these commissions including the "Environment Specialization Commissions"

established in the sixth and seventh plans is to bring environment and development into conformity with each other.

"With the eighth plan, development plans began to be considered apart from five-year periods. Ninth development plan was designed as to cover the years of 2007 and 2013 as a product of this approach [15]. In the introduction part of the ninth plan that was enacted by being published in the Official Gazette there was an assessment of the general situation and target identification as follows: "... The ninth development plan that covered the years of 2007 and 2013 coincided with a period when multidimensional and rapid changes were experienced, competition became intense and uncertainties increased [16]. This plan was prepared within the framework of Long Term Strategy (2001-2023) and a Vision of "Turkey which grew steadily, shared income more equitably, had competitiveness on a global scale, turned into an information society and completed the EU accession process.""

Following this evaluation, the determination made regarding the environment in the plan was shaped by a set of principles and objectives under the sub-headings of *Environmental Protection and Development of Urban Infrastructure*. In the EU accession process, legal and technical regulations seem to determine the environmental priorities of the plan; in the same context it is stated that "sustainable development" policy will be grounded on in relation of environment with other sectors. The ninth plan dwells especially upon the subject of environmental infrastructure investments and the need for the regulations that are the reflections of international environmental policies to be reflected in the national regulations rapidly is defined as the main spirit of the plan.

National Environmental Action Plan (NEAP) has been the most important working and policy document for the creation of environmental policies and solution proposals in Turkey. During the seventh five-year development plan, NEAP Report prepared with the support of the World Bank and published by State Planning Organization (SPO) in 1998 has been the most comprehensive policy document that was prepared in the field of environment in Turkey. Since NEAP is not officially binding legally in the harmonization of environment and development policies, it hasn't had any legal sanctions.

The Ninth Development Plan (2007-2013) and NEAP' environment and development plans form the basis of policies related to environment and development in the European Union harmonization process. However, the approaches that have been reflected to Turkey's current environmental policy documents can be said to be still behind the EU. Environmental policies of Turkey seem to be shaped by "traditional (conventional) environment policy instruments".

Around the world, this understanding which was dominant in the 1960s and 1970s means the elimination of the pollutant emissions and waste that occur after an economic activity and the removal of these from receiving environments. Polluter pays concept has been the prominent principle of this policy. This approach is defined as restorative policy. This environmental policy also known as *End of Pipe Approach* has begun to hand over its place to Pollution Prevention policies, in other words preventive policies. In the EU environment, with the policy changes observed in the "environmental action plans" in the 2000s, there has been a transition towards the "predicted" policies.

United Nations Environment Program (UNEP) aims to prevent/reduce pollution without occurring in the Pollution Prevention approach (an approach also known as Clean Production) which is defined as "reducing the risks for people and environment with the implementation of a holistic, preventive environment strategy to products and processes continuously". In traditional pollution control (or end of pipe) approaches, the invariance of production and design phases are adopted, pollution is seen as an inevitable consequence of these phases and solutions are tried to be found after problems occur. This situation gives the relevant organizations only the responsibility of waste treatment and disposal, therefore a significant amount of incremental costs emerge at the end of the process. In pollution prevention policy, pollution and waste that may occur in any investment or production process are seen as a result of inadequacy, ineffectiveness, and inefficiency in design, resource utilization and production stages and it is intended to solve the problem by taking necessary measures in these stages. Therefore, in pollution prevention and clean production not only waste generation is decreased but also the whole production process is reorganized and radical economic benefits are achieved. Pollution prevention worldwide has brought a major innovation to the solution of environment problems compared to production process and accordingly end of pipe approaches, which were dominant until the 1970s. It appears that recently this approach has found a place for itself in environment policy documents and implementations on international platforms.

1.3. Obstacles and Challenges in Environmental Protection

Factors such as rapid population growth, irregular urbanization, industrialization and tourism which cause environmental problems are the main factors resulting in failure to protect the natural resources in a healthy way [17]. Agglomeration in urban spaces and irregular urbanization lead to pollution of natural resources such as air, water and soil. In addition,

people's healthy habitats are affected negatively due to the destruction of historical urban fabric, and desertification, soil erosion and similar problems resulting from the destruction of forests [18]. "A General Approach to Urban Space, Environment, Diversity and Human Rights", Human, Environment, City, 2nd edition, İstanbul: Democracy Library).

The major obstacles and challenges encountered during the prevention and solution of environmental problems are listed as follows [17];

- Problems relating to legislation,
- Problems resulting from central organization,
- Problems arising from local organization,
- Problems encountered in Public Participation in Environmental Management,
- Problems encountered in the regulations on Environmental Education,
- Environmental Costs,
- Error analysis of the implementations specified in environmental planning,
- Environmental Auditing,
- Neutrality in environmental auditing,

Furthermore, Turkey's weaknesses in "Environmental and Sustainable Development" area that is existent in the Environmental and Sustainable Development Thematic Panel Report are listed as follows [19].

- Regarding the environment, the areas of intellectual interest and expertise are mixed.
- The necessary support to environment-related research and development studies is not provided.
- Financial incapability does not allow the use of adequate resources for environment protection investment. However, the existing resources related to environmental investments are not used sufficiently and purposefully.
- Economic structure does not allow the opportunity to liquidate technologies whose outdated and polluting features are more rapidly (industry, transport, fuel etc.)
- Organized, adequate, and reliable data is not available regarding pollution prevention, control, and disposal. The same situation is also the case for our natural resources and historical/cultural values.
- New technologies are foreign-dependent in some sectors.
- There are contradictions and conflicts in corporate power and responsibilities in law. The legal infrastructure has not been harmonized with the international obligations.

- Environmental knowledge and the importance of environment have not been understood adequately in all sections of society including decision-makers.

- Adequate infrastructure, resources, information, and fluency are not available for the effective use of environmental management tools.

- Environmental indicators of sustainable development that will guide the policies and decisions at the national level and that is also to be notified in accordance with international obligations have not been formed.

- High leakages in water and energy distribution network cause production to be increased unnecessarily.

- Existing legal regulations are intended not to encourage protection but to punish the polluter after the contamination.

- Uncontrolled population growth and migration lead to unplanned urbanization and land use.

- Efforts to enable the development of environmental awareness and to activate the participation processes could not succeed.

- In transportation sector, transportation policies providing priority – privilege to land transportation, and encouraging land transportation instead of railroad transportation which consumes less energy and causes less environmental problems are implemented.

- "Decor qualified protection" works which prioritize tourists' appreciation and expectations over the historical document value of buildings hinder the protection of "originality" in other words "history".

2. Focus on environmental adult education: good practices in Turkey

2.1. Historical development of environmental education in Turkey (brief historical overview of environmental education (national specific))

Immediately after the establishment of the Republic, health and development problems caused by the war period led to the establishment of the Village Law in 1924, the Municipal Law and the Public Hygiene Law in 1930. The Village Law involved articles related to environmental health. This law was aimed at protection of the environment. With the Municipal law, environmental health and its control were given to municipalities. With Turkey's entering into

a period of planned development, a special section was allocated to the environment in the first five-year development plan (1963-1967). In the third five-year development plan (1973-1977) it was addressed in a separate section for the first time. In order to solve environmental problems without affecting the resources that were reserved for development; ensuring cooperation with national institutions, selecting the locations of industrial facilities by planning, and taking care of and protecting urban settlements were predicated on. The issues of water, sea, air and soil pollution and erosion, noise, and resting area were included in the fourth five-year development plan (1979-1983). In the fifth five-year development plan (1985-1989), under the title of "Environmental Problems" it was stated that environmental problems were being faced, and the issues focused on included the necessity to provide future generations with an opportunity to benefit from natural resources, to introduce rational regulations on the use of water resources, to take necessary precautions against water pollution, to make use of industrial waste, to supply fuel in adequate quality in order to prevent air pollution, to support universities and other institutions by prioritizing research and development activities in the field of environment. In the sixth five-year development plan (1990-1994) the following points were adopted as basic principles: ensuring a healthy life, assuring the management of natural sources in a way that would allow sustainable economic development by protecting human health and the natural balance, and leaving a decent nature, physical and social environment for the future generations.

The most important development of the 1990s was the establishment of the Ministry of Environment by the governmental Decree No. 443 on the Establishment of the Ministry of Environment and its Duties on 09.08.1991. A second important development was the approval of environment, health, traffic and reading courses program by the Board of Education and Discipline's decision dated 07.09.1192 and numbered 273 and its being put into practice in the 1992-1993 academic year.

In the seventh five-year development plan (1995-2000) it was stated that it was necessary for the public to participate in the environmental management and decision-making processes, and every segment of society should be educated about environment education.

Although environmental education has an especial place among environmental issues, this issue has begun to be discussed only in recent years. First of all, the Environment Foundation of Turkey found it appropriate to carry out a project that enlightens other studies conducted both in the Ministry of Environment and other institutions and that reveals the problems

encountered in practice related to the subject. Within the framework of the project, environmental education consists of the following sections:

1. Environmental education in formal education
   a. Preschool environmental education
   b. Environmental education in primary school programs
   c. Environmental education in secondary school programs
   d. Environmental education in higher education
2. Environmental education in non-formal education

2.1.1. Environmental education in formal education

In the 1982 Constitution, adoption of environmental rights and international agreements on environmental issues brought forward environmental education in the late 1980s. Therefore, the Ministry of Education paid attention to the issue and environmental problems and environmental education issues began to be evaluated in the National Education Council.

2.1.2. Preschool environmental education

For a child in preschool period, "environment" is all the surroundings around him. His room, house, family members, neighbours constitute his environment. In the programs carried out in private and official preschool classes that are subject to the Directorate of Preschool Education (established in 1992), various topics are addressed in order to increase environmental awareness. These topics are in the form of headings as follows: Our home and family, Our health, Summer, Forest, Plants and Animals.

2.1.3. Environmental education in primary and secondary school programs

Before putting courses related to environment at schools, "primary school program" prepared in order to be applied in the first grade of primary schools drew attention to the following issues:

- The student protects his own health and the health of people around him and tries to improve them.
- The student learns to keep his body and clothes clean. He feels uncomfortable with living in unhygienic places. He believes that being clean is essential for a healthy growth and life.

One of the objectives of the program of primary schools that changed in 2004 was to raise environmentalist individuals. The program aimed to develop extreme sensitivity to nature, natural phenomena and natural resources, and the capacity of discriminating and classifying these. The new program aims at acquiring gains such as environment protection awareness, conscious consumption and efficient use of resources, recycling, protection from natural disasters, and protection of individual health and acquiring these gains through research and creative thinking skills [20].

It is seen that environmental issues in secondary schools are taught not by experts in their field but by teachers of different subjects and they are not among mandatory courses but left to students' preferences. Issues including environmental education are usually provided with courses such as science, social studies, chemistry and biology.

In the early 2000s, for the access to environmental information there were efforts to form "Environmental Knowledge Bank" under the Ministry of Environment and Forestry, and projects began to be implemented at primary schools all over the country within the framework of the cooperation protocol with the Ministry of Education. Educational studies that are carried out in accordance with the demands of the primary and secondary schools outside the scope of this project, private and state corporations and institutions, and events with the participation of public and the students studying at the schools within the scope of the "Applied Environmental Education Pilot Project" being implemented within the framework of World Environment Day activities on June 5th are organized. With the activities organized among the schools within the scope of the mentioned project, attention is drawn to environmental education by rewarding the successful schools. Some of the activities held to attract attention are as follows: printing and distribution of various enlightening and motivating posters and brochures for the public on the issues of environmental and forest; broadcasting movies made for this purpose on TRT and national TV channels; publishing periodicals (Kozalak Newspaper and Journal of Environment and Human); bilateral cooperation protocols signed with the Ministry of Education, The Office of Commander in Chief, Directorate of Religious Affairs, TRT, RTUK, TURK-IS, HAK-IS, TISK, DISK and General Commandership of Gendarmerie and studies conducted with non-governmental organizations like TOBB, REC and TISK are noteworthy developments.

Especially in recent years, trainings taking place in nature have been increasing and trainings in order to help individuals find solutions to the problems they encounter are becoming increasingly common.

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2.1.4. Environmental education at universities

Environmental education at the level of bachelor degree in Turkey in provided extensively only at the department of environmental education. In a variety of programs included in universities or advanced technology institutes, there are courses that aim to make university students acquire desirable attitudes and behaviours related to the environment. These courses are offered to students under different headings such as "Ecology, Turkey's Environmental Problems, Environmental Sciences, General Biology, Environmental Law, Environmental Philosophy, Ecosystems, Environment and Human, and Environmental Biology". In essence the functioning of ecosystems, diversity, environmental problems resulting from human activities and solution proposals are discussed in these courses. Particularly the students enrolled in programs like agriculture, forestry, biology, architecture, environmental engineering, biology teaching, classroom teaching and science teaching take courses related to the subject compulsorily. Courses are offered to the students who are enrolled in other programs and who wish to take these classes electively [21].

2.1.5. Environmental education in non-formal education

Non-formal education can be provided at any moment, at any age and at any place without being limited to a specific age group or a time period. It is intended to meet the education needs of individuals. Non-formal education in Turkey has been structured as programs aimed at making people who cannot benefit from formal education acquire skills, preparing them for a job, helping them improve themselves in the job they have. Although the education which includes individuals as passive listeners who participate in environmental education activities organized for adults helps individuals be environmentally literate adults, unfortunately it cannot adequately answer the objective of ensuring participation in the protection of the environment and the solution of environmental problems which is one of the general aims of environmental education. When the activities in Turkey are considered, it stands out that the majority of the trainings are organized as meeting, conference and seminar aimed at creating awareness and informing about the environment and environmental problems but the number of trainings based on practice and participation is very few [22].

Environmental education provided at non-formal education level is not systematic. It has an educational approach to inform public, draw attention to danger and teach certain subjects at certain times. However, there is no cooperation with the relevant institutions to disseminate the attempts to solve the problems throughout the country. It is difficult to say that there is

cooperation in the educational dimension for the environment between public organizations that are engaged in environmental activities and the ones which have to be engaged, and between these organizations and voluntary organizations.

The importance of voluntary organizations for providing environmental education through non-formal education cannot be ignored. In the formal education part of the sixth five-year development plan, the priority was given to non-formal education to be used towards skill training and profession and environmental education to be provided through non-formal education and the organizations that would provide this education were put into the background by stating that "priority in non-formal education will be skill training for employment; the scope and facilities of skill training and vocational training by cooperating with the Employment Agency, state and private employment agencies will be encouraged to provide services on this issue."

The main objective of environmental education in Turkey is to inform all segments of society on environmental issues, to raise awareness, to provide permanent and positive changes in behaviour and to ensure the active participation of individuals in solving problems.

2.2. Formal/Non-formal Environmental Education (incl. adult education): Legal Basis; Responsible Organizations; Training Settings and Systems; Tendencies and Problems

2.2.1. Legal basis

Environment phenomenon in Turkey became a current issue with the 1982 Constitution. The 56th article of the constitution brought the principle that "Everyone has a right to live in a healthy and balanced environment. Improving the environment, protecting the environment and preventing environment pollution are the duties of both the state and the citizens." The Environmental Law which was prepared following the instructions of this article and which went into effect on 11 August 1983 handled the environment as a whole ecological system with its components like air, water and soil [23].

The studies carried out about the condition of the environment in Turkey were evaluated in detail at a meeting entitled "Environmental Education" made in Ankara by the Environmental Foundation of Turkey (EFT) in 1993 [24].

The recommendation for all secondary level students' being trained on the subject of environmental education at secondary level instead of its being an elective course studied by

only a limited number of students was taken at the fourth Environment Council organized in İzmir by the Ministry of Environment in 2000.

A detailed strategy regarding the training of all individuals was given besides the assessment of the current situation on this issue in the National Environmental Action Plan Training and Attendance Report that was commissioned by the State Planning Organization (SPO) for the first time between 1995 and 1997 on the basis of Rio decisions. In Turkey's National Environmental Action Plan it is seen that the human element found in the centre of sustainable development is discussed in almost every part of the plan. In the Training and Attendance Report that formed a basis for this plan a strategic plan was provided in order to realize an effective environmental education under the titles of Access to information, Research and Experiments, Education Programs, University Education, Staff Training, Training of the Public and Cooperation [24, 25].

Finally, a cooperation protocol was signed between the Ministry of Education and the Ministry of Environment and Urbanization on 30 December 2014 to carry out studies and trainings on issues such as environment, water, air, and energy efficiency.

2.2.2. Responsible organizations

The responsible organization for issues related to environment in Turkey is the Ministry of Environment and Urbanization; and it is the Provincial Directorate for Environment and Urbanization, Ministry of Forestry and Water Affairs and Provincial Directorates. They lead the provision of environmental education as well as the practice of laws and regulations. There is Education and Publication Department within the body of this ministry. The main duties of this department are as follows:

    a. To support the publication of written, audio and visual documents on environmental and urban issues.

    b. To collect, evaluate, and publish all the information and documents about the jurisdiction of the Ministry with the purpose of education; to prepare film, slides, photograph and similar documents or have them prepared; to conduct archive, documentation and library services.

    c. To cooperate with public institutions and private institutions on environment-related publications.

d. To cooperate with the Ministry of Education, and scientific and voluntary organizations for preparing, implementing plans and programs related to environmental issues and training people.

e. To conduct joint studies with public institutions in order to include environmental issues in the activity and research programs of universities, to cooperate with relevant organizations when it is necessary and to carry out studies to ensure the exchange of information, document and trainers.

f. To perform necessary works to reveal and promote environmental values, to follow the program, project and activities of international organizations on environmental education, to fulfil the international and inter-agency information services.

g. To provide vocational training or have it provided to public institutions and professional organizations on issues which are within the jurisdiction of the ministry.

h. To perform similar duties assigned by the Minister.

In addition, the Ministry of Transport, Maritime Affairs and Communication is concerned with substances whose transportation is hazardous through land or sea and does what is necessary to ensure the safe transportation.

2.2.3. Training settings and systems

In recent years there have been legal requirements for a clean environment and sustainable development in Turkey. The largest share in these requirements is aimed at adults who contribute to the production. According to the laws dated 21.11.2013 and numbered 28828 the task of supervising public institutions was given to the Environmental Officer, Environmental Management Unit and Environmental Consulting Firms. According to this law, the management of organized industrial zone, specialized organized industrial zone, industrial zone and free zone has to employ an environmental officer permanently or establish an environment management unit or receive environment management services from the environmental consulting firms.

According to the law, it is necessary for supervision officers to graduate from the environmental engineering department of an at least four-year university, to have received a master's degree or more in environmental engineering, and to attend the training that is conducted by the Ministry on environmental legislation.

Adult education for industry is carried out by the Environmental Officer, Environmental Management Unit and Environmental Consulting Firms. The main objective of environmental

education is to reintegrate a new type of people, understanding of ethics and consumption awareness to the society, to raise a conscious human model that consumes as needed, feels responsibility towards future generations and is sensitive to the environment. The basis of Environment Management comes from the fact that each individual that forms the structure of the business is aware of their individual responsibilities. In order to create awareness to individual and institutional responsibilities at businesses, a variety of trainings are provided in trainers' education by experts who are authorized in certain fields by the Ministry. Some of these are:

- Packaging waste management training
- Water pollution management training
- Sludge control training
- Principles of waste water treatment training
- Soil pollution management training
- Solid waste management training
- Trainings on the international transportation of dangerous substances by land (ADR)
- Trainings within the scope of the international code regarding the dangerous goods carried by sea (IMDG Code)

2.2.4. Environmental problems and causes

According to the data obtained from the Eco-Center survey, the factor that affects the existing environmental condition and sustainable development in Turkey is stated to be environmental pollution and lack of awareness. It is expressed that people are either not familiar with the concept of sustainable development in a clean environment or the ones who are familiar know very little. It has been identified that people who have state that they are not aware of the formalities necessary for the environmental laws and the enforcement of these laws are barely aware. It has been observed that they have a little command of technical information related to environment management issues. In addition, people who should be competent in environment and management issues are indicated as primarily responsible managers, academics and technical staff who received their competence label.

Deficiencies and unconsciousness in environmental education and avoiding cost in production are the leading causes that affect environmental pollution negatively.

When the priorities in nation-wide environmental adult education are considered; they are listed as solid wastes, waste water, and energy efficiency. However, the areas where foreign funded education will be needed in the coming years are ranked as compliance with environmental laws, waste reduction, environment management systems, energy efficiency, and carbon reduction commitment energy efficiency scheme. For the need to ensure people's participation in an adult education program on clean environment, the reasons of obtaining new information, learning new information and improving professional competencies stand out.

One of the most important environmental problems is observed to be societies' not considering the environment while carrying out production and consumption activities. Due to these activities, the pressure on the environment is increasing and its capacity is exceeded. Although the causes and levels of the pressure the countries have on the environment vary according to the development level of the society, environmental problems are evaluated in a global perspective rather than locally and regionally [26]. According to this evaluation, the factors that lead to environmental problems are mainly population, urbanization, and industrialization.

Population

With the increase in world population the pressure of the need for production, and consumption on the environment is increasing more and more. While the pressure on the environment is increasing with the increase in the number of global consumers, the growing population and income level, and energy, transport, water use and waste generation in developing countries, this situation is emerging as environmental pollution resulting from the need for production, technology, energy and raw material consumption in developed countries.

Urbanization

Today almost half of the world's population live in urban areas and it is estimated that this figure will increase to 60% in 2030. In this regard with the increased population, land use, destruction of natural habitats, long-term land losses, increase in greenhouse gas emissions and air pollution put pressure on the environment. Depending on the increase in the needs such as water, energy, food and shelter based on urbanization, natural resource consumption has also increased. This condition triggered the acceleration of urbanization with the industrial development. Therefore, it is seen that industrialization is an important factor in the emergence of environmental problems [26].

Industrialization

Industrialization is considered as one of the most important elements of socio-economic development and since the beginning of the industrial revolution and technological developments it has been recognized as key criteria of development. Environmental aspect has been ignored during this process, as well. However, industrialization has affected the environment negatively besides the positive economical returns. In every stage of production-processing-transportation-consumption chain not only natural resources are consumed but also it puts pressure on the environment [26].

3. Development of innovative solutions for education of adult training providers: EQF/NQF Introduction

3.1. EQF – NQF Interrelation

3.1.1. European Framework for Qualifications

There are two different frameworks for qualifications in Europe. The first one is The Overarching Framework for Qualifications of EHEA (QF-EHEA) and the second one is European Qualifications Framework for Lifelong Learning (EQF/LLL). QF-EHEA was adopted in Bergen (Norway) in May 2005 by the Education Ministers of 45 countries that were members of the Bologna Process; it was a framework based on Dublin Level Descriptors and intended only for higher education. In this system learning outcomes to be acquired at the end of each grade of higher education are defined. EQF/LLL designed especially for 27 member countries of the EU will evaluate the learning outcomes of an individual and ensure him to move to the next level in his education and training; this framework which was designed to include the qualifications obtained at the end of academic and vocational education, and apprenticeship training at all kinds of primary, secondary and higher education levels including formal, non-formal, and informal and which was included in the European Union's "Education and Training 2010" was finalized by receiving opinions of 32 member countries to EU, EU candidate and the European Economic Area, including Turkey.

The EU Commission's "EQF/LLL Proposal" dated 505.09.2006 was submitted to the EU Council of Ministers and Parliament. The proposal became the joint proposal of the EU Council of Ministers and European Parliament on 22 April 2008. In EQF/LLL system,

learning outcomes for all levels of lifelong learning were identified in eight levels based on knowledge, skills and competencies [27].

As EQF/LLL covers all stages of lifelong learning, working groups are extensive. There are ministry representatives from all levels, representatives of supreme board of higher education and sector representatives.

EQF/LLL system's effort or aim to create a common framework for very different levels in lifelong learning causes many definitions and concepts in this system to differ from the definitions and concepts within the QFEHEA system prepared for only higher education. The descriptors provided in the EQF/LLL system are quite general and can be applied to any kind of learning involved in lifelong learning. However, these two systems can be associated with each other; the 5th and 8th levels of the EQF/LLL system are general descriptors that can be applied to all kinds of qualifications and can also be applied to higher education qualifications. Thus, the levels mentioned can be associated with the QF-EHEA system [27].

Qualification levels regarding the professions whose standards will be determined according to the Article 5/2 of the Regulations for the Preparation of National Occupational Standards must comply with the qualification levels adopted by the EU and the "European Qualifications Framework for Lifelong Learning" (EQF) adopted on 23 April 2008 by the European Parliament and Council. There are eight qualification levels in the European Qualifications Framework that are based on for the description of the qualifications (Table 1). Each level is composed of a combination of specific knowledge, skills and competencies. These levels cover a broad area from the most basic learning levels (Level 1) to the top learning levels (Level 8). In general, the more the levels increase, the more the expected knowledge, skills and competencies increase; for example, a person at the sixth level is expected to have more knowledge, skills and competencies than someone at the fifth level. EQF, as a tool to promote lifelong learning, includes general and adult education, vocational training [28, 29] and education (Vocational Qualifications Authority, 2015) besides higher education.

European Qualification Framework (EQF) Reference Levels:

Table 1 presents the reference levels of the European Qualifications Framework. Definitions of knowledge, skill, and competence are as follows:

Knowledge: It is defined as information about the cases, principles, processes, and general concepts related to a business area (theoretical and/or practical knowledge).

Skill: It is defined as cognitive (logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments) that are necessary to be able to display performance in a specific topic or task.

Competence: It is defined in terms of "Autonomy and responsibility).

Table 1. European Qualification Framework (EQF) Reference Levels

EQF Level	Level descriptors		
	Knowledge	**Skills**	**Competence**
Level 8	The employee has knowledge at the most advanced frontier of a field of work or study and at the interface between fields.	The employee has the most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice.	The employee demonstrates substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research.
Level 7	The employee has highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research; and has critical awareness of knowledge issues in a field and at the interface between different fields.	The employee has specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields.	The employee manages and transforms work or study contexts that are complex, unpredictable and require new strategic approaches; takes responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams.

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Level 6	The employee has advanced knowledge of a field of work or study, involving a critical understanding of theories and principles.	The employee has advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study.	The employee manages complex technical or professional activities or projects; takes responsibility for managing professional development of individuals and groups.
Level 5	The employee has comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge.	The employee has a comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems.	The employee exercises management and supervision in contexts of work or study activities where there is unpredictable change; reviews and develops performance of self and others.
Level 4	The employee has factual and theoretical knowledge in broad contexts within a field of work or study.	The employee has a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study.	The employee exercises self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; supervises the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities.

Level 3	The employee has knowledge of facts, principles, processes and general concepts, in a field of work or study.	The employee has a range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information.	The employee takes responsibility for completion of tasks in work or study; adapts own behaviour to circumstances in solving problems.
Level 2	The employee has basic factual knowledge of a field of work or study.	The employee has basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools.	The employee works or studies under supervision with some autonomy.
Level 1	The employee has basic general knowledge.	The employee has basic skills required to carry out simple tasks.	The employee works or studies under direct supervision in a structured context.

[1] Features of each level are defined with a "level descriptor" that defines the expected competencies as a result of the knowledge, skill, and learning required for that level. While determining the levels, criteria like the breadth and depth of theoretical and practical knowledge; the complexity of the skills related to grasping, creativity, and practice; the complexity of intellectual skills; the amount of responsibility a person takes; problem solving and/or creativity degree; the amount of teamwork; the scope of leadership and accountability are taken into account.

3.1.2. National Qualifications Framework (Qualifications Framework in Turkey [QFT])

Qualifications Framework in Turkey (QFT) is the National Qualifications Framework unique to Turkey which was designed in line with the European Qualifications Framework and which includes all the qualification principles that are gained through vocational, general and academic education and training programs, and other learning ways besides primary, secondary and higher education. The concept of National Qualifications Framework (NQF) means the overall principles and rules that are comprised of levels and that are used to describe the competencies that exist in a country and to classify and compare the competencies according to the established criteria. NQF integrates the qualification systems in a country and provides coordination between the qualification systems.

The NQFs that enable the qualifications to be more transparent and definable, and make it easy for the learners to move horizontally and vertically between the qualifications were developed and implemented by countries on different continents, notably Europe. According to the Article 23/A of the Vocational Qualifications Authority Law numbered 5544, "All the procedures regarding the creation and development of the National Qualifications Framework and keeping it up to date are carried out by the institute." Based on this article, in August 2010 the Vocational Qualifications Authority (VQA) established the NQF Preparatory Commission that is responsible for taking the necessary decisions required for the establishment of QFT and that consists of the Ministry of Education (MoE), the Higher Education Council (YOK) and the representatives of the VQA. QFT's activities related to the planning and development processes were carried out by the NQF Advisory and Evaluation Platform and a working group that was formed by the NQF Preparatory Commission.

QFT credentials document prepared by the working groups was presented at the NQF Advisory and Evaluation Platform where 80 institutions were represented, and it was turned into QFT document in accordance with the views and proposals of the representatives. As an integrated structure that enables the classification of the qualifications in Turkey, QFT, whose quality assurance has been provided, is designed to cover all the qualifications that are gained through vocational, general and academic education and training programs, and other learning ways besides primary, secondary and higher education. QFT covers all the qualifications especially the ones that the MoE is responsible for, the national qualifications under the responsibility of VQA, the higher education qualifications presented under the coordination and supervision of the Council of Higher Education, and all the qualifications that other institutions are responsible for. QFT has a structure composed of levels and level descriptors.

The 8 levels in the QFT are defined through level descriptors and supported by qualification types. The qualification types are defined by the qualification type determinants. With the QFT's entering in force, the following objectives are targeted for education and training institutions, learners, employees and employers:

a. Transitions between the qualifications, recognition of prior learning, and the evaluation of an individual's all learning outcomes will be facilitated.

b. Added value that comes with a more qualified workforce for labour market, an opportunity to access to more employment and learning opportunities for learners and individuals, and quality references and national/international referencing opportunities for education and training institutions will be presented.

c. By ensuring the recognition and transparency of the qualifications internationally, the mobility of individual will be supported.

d. In order to meet the community's needs that are diversifying day by day, a solid basis for the development of new qualifications will be presented.

In accordance with the policies that would make QFT functional and the studies carried out to establish relevant processes, and protocols; QFT Regulations was prepared which would enter into force by the decision of the Council of Ministers to regulate the procedures and principles about the establishment, development, management and updating of the QFT. In the QFT Regulations, there are procedures and principles related to the inclusion of the qualifications acquired through general, vocational and academic education and training programs and other learning ways to the QFT, insurance of the quality assurance of the qualifications, identification of the organizations, institutions, and structures that will ensure the quality assurance, recognition of prior learning, transitions between qualifications, and determination of the duty, authority and responsibilities of the organizations and institutions.

European Qualifications Framework for Lifelong Learning (EQF):
EQF was accepted by the European Parliament and Council on 23 April 2008 with the council recommendation numbered 2008/C 111/01. EQF acts as a higher framework to ensure the transparency of the qualifications in Europe, to encourage the transfer of the qualifications between different countries, to recognize the qualifications, and to be able to compare different NQFs. The basis of the EQF is to create 8 levels where knowledge, skills and competencies are defined. All the countries that participate in the EQF recommendation

accepted to associate their NQF with the EQF and to comply with the application calendar presented in the recommendation (Figure 1). These countries determined national coordination centres to coordinate the relationship between their NQF and the EQF. The EQF National Coordination Centre in Turkey is the "Vocational Qualifications Authority".
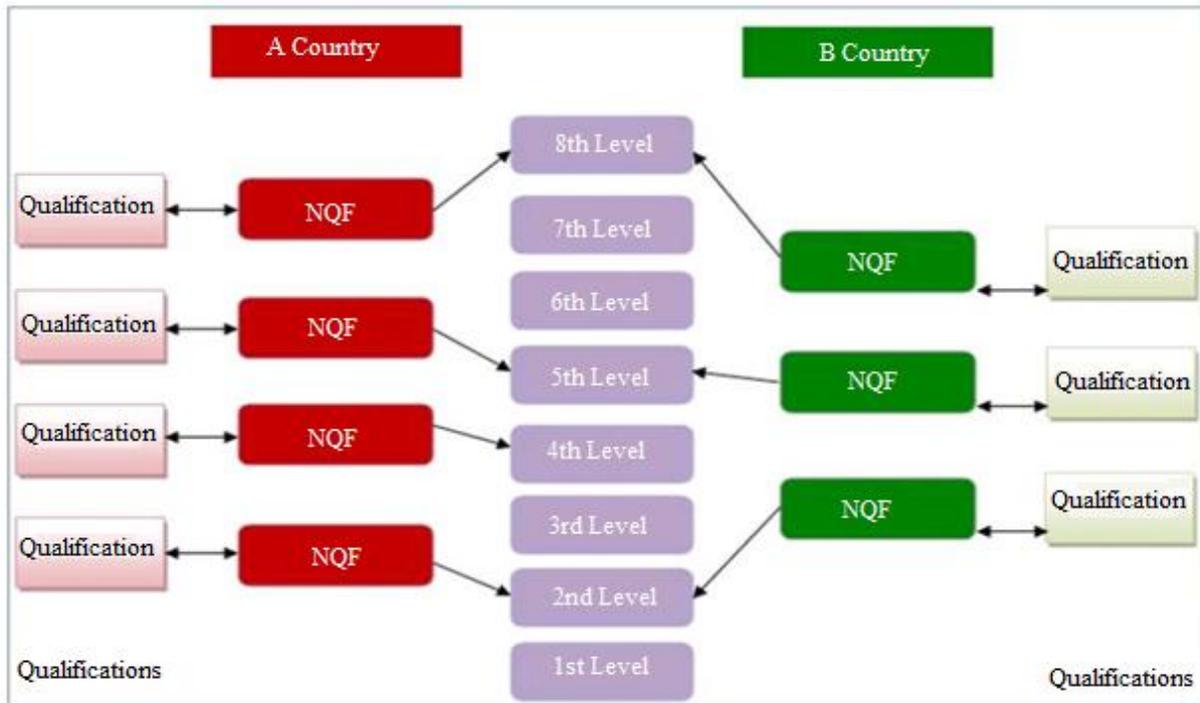

Figure 1. The association of the National Qualifications Framework or Systems with the European Qualifications Framework

3.1.3. Higher Education Qualifications Framework in Turkey (HEQFT)

The current structure of the Turkish Higher Education System is compatible with the 3-level system (Bachelor, master, and doctorate) envisaged in the Bologna process. In addition, "short level" (Short Level- QF EHEA and 5th Level - EQF-LLL) which is foreseen and described as interim qualifications in both European Upper Qualifications Frameworks are offered as "associate's degree" in the Turkish Higher Education System. For this reason, with HEQFT's current state, its being defined by four levels to cover the associate's, bachelor's, master's and doctorate levels was considered to be appropriate (Table 2).

Educational qualification profiles for each HEQFT level:

It is known that there are qualifications that can be defined with different learning outcomes at each level of the Turkish Higher Education System. The classification of these educational

programs (competency groups) which have differences in terms of learning outcomes at each higher education level is presented below.

Table 2. Turkish higher education system levels and qualifications that have different learning outcomes at each level.

HIGHER EDUCATION LEVELS	DEGREES/ QUALIFICATIONS		
Doctorate QF-EHEA: 3rd level **EQF-LLL : 8th Level**	Doctorate	Speciality in Medicine	Proficiency in Art
Master QF-EHEA: 2nd Level **EQF-LLL : 7th Level**	Master's Degree	Non-thesis Master's Degree	
Bachelor QF-EHEA: 1st Level **EQF-LLL : 6th Level**	Bachelor's Degree (Faculty programs)	Bachelor's Degree (Collage and Conservatory programs)	
Associate QF-EHEA: Short Level **EQF-LLL : 5th Level**	Associate's Degree (within the faculty undergraduate programs)	Associate's Degree (Vocational Schools)	

Within the scope of the HEQFT these qualification groups' being defined with different profiles, and the degrees gained is an important study subject in terms of the transparency and intelligibility of the HEQFT. The Commission and the Working Group developed three different proposals for how these qualifications with different learning outcomes should take place and be defined within the HEQFT and they presented these to the views of the stakeholders in the "National Qualifications Framework for Higher Education in Turkey Interim Report". In accordance with the views received from the stakeholders, as of the HEQFT's levels it was deemed appropriate that the HEQFT consisted of three different higher education qualifications frameworks that had different qualifications. Within higher education system, the existing competencies (profiles) at associate, bachelor, master and doctorate levels shown in Table 3 were classified based on the learning outcomes as academic-weighted (1)

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higher education qualifications, (2) vocational education-weighted qualifications and (3) art education qualifications. Then, as a result of the studies of the Working Groups formed for each area, it was seen that art education qualifications could be expressed in the higher education qualifications and it was considered appropriate that the qualification profiles that were to be found within the scope of the HEQFT were categorized as (1) Higher Education qualifications and (2) Higher Education Vocational Education Qualifications. These are shown below.

Table 3. HEQFT Levels Qualification Profiles
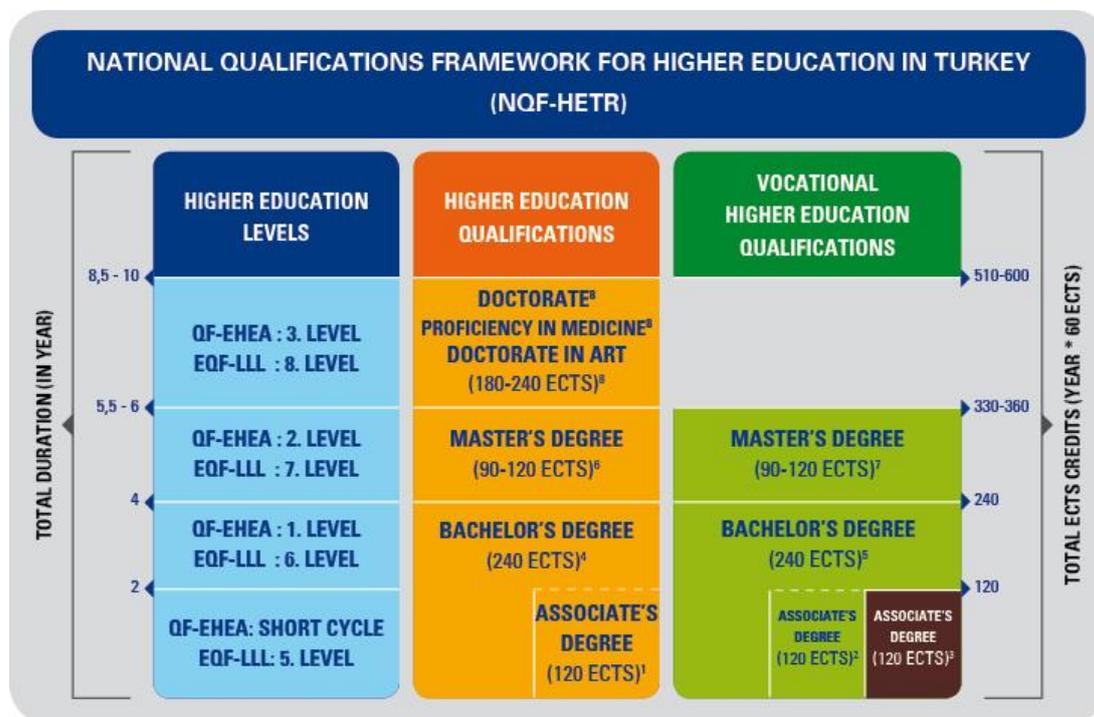
1. Academically-oriented associate's degree educational programmes which are related to or within undergraduate programmes.

2. Vocationally-oriented associate's degree educational programmes which are related to or within undergraduate programmes.

3. Vocationally-oriented associate's degree educational programmes of Vocational Higher Schools

4. Academically-oriented programmes

5. Vocationally-oriented bachelor's degree programmes

6. Academically-oriented master's degree programmes with or without thesis

7. Vocationally-oriented master's degree programmes with thesis or without thesis

8. Doctoral programmes

The levels (diplomas) provided for each level and/or profile of the HEQFT:

The types of the degrees awarded for each level within the Turkish higher education system are clear and these are: at associate's degree level; at associate's, undergraduate levels within undergraduate programs; at faculty, college and conservatory undergraduate and master's degree levels; at masters with thesis and non-thesis masters levels and doctorate level; doctorate, speciality in medicine and doctoral degree in art.

Overall level descriptors used for the identification of the levels and the identification of the HEQFT:

EQF-LLL (European Qualifications Framework- Life Long Learning) proposed by the European Parliament and the Council of Europe, and which was also in compatible with the QF-EHEA was considered appropriate by the Commission and the Working Group for the higher framework that would be used to associate the HEQFT levels with the European Qualifications Framework Levels. Therefore, the level descriptors that would be used for the identification of the HEQFT levels were agreed to be in compatible with the EQF-LLL level descriptors due to the reasons mentioned above.

One of the most important reasons for this choice is EQF-LLL's flexibility which it provided for the association of higher education qualifications, and primary and secondary education qualifications within the framework of lifelong learning with the qualifications acquired based on informal education and experience in time; and the other one is the fact that vocational training has an important place within the Turkish Higher Education System with vocational schools and the schools that provide education mainly for a profession and that EQF-LLL covers this area as well. With this approach, it is considered that the existing qualifications within the Turkish Education System and the qualifications that will be developed in time can be defined and associated with each other in unity, and a National Qualifications Framework covering all education and training can be created.

Accordingly first of all, level descriptors were prepared using EQF-LLL level descriptors (general learning outcomes) for associate's, bachelor's, master's and doctorate levels to cover all the levels of higher education in the Turkish Higher Education System within the framework of the Higher Education Qualifications Framework and the qualification profiles (differences) of these levels, and it was accepted with the other design elements of the HEQFT that were mentioned above in the Higher Education Board meeting dated 21.01.2010.

3.1.4. National Vocational Qualification System (NVQS)

It is the rules and activities related to the development and application of the technical and vocational education standards and qualifications, the accreditation, authorization, control, measurement, evaluation and certification regarding these standards and qualifications based on the national and international professional standards.

The goals of the national vocational qualifications system are as follows:

- To strengthen the relationship between education and employment
- To establish national and international standards for learning outcomes
- To ensure quality assurance in education and training
- To relate qualifications for lateral and vertical transfers; to create the national and international comparability infrastructure
- To ensure the access to learning, progress in learning, and recognition and comparability of learning
- To promote lifelong learning

In the NVQS first of all, draft occupational standards are developed with the participation of business world and other related parties. The drafts submitted to the VQA sector committee are published in the Official Gazette by the approval of the VQA Board of Directors after the examination and evaluation.

The preparation process of the National Qualifications based on the occupational standards are carried out by the participation of education and training institutions, labour market, and other interested parties; and after the examination and evaluation of the VQA sector committee, the qualification drafts prepared are recognized as the national qualifications by the approval of the VQA Board of Directors and placed into the National Qualifications Framework (NQF). The national qualifications form the basis of the testing and certification processes, and the development of test materials and education and training curricula and materials. Following the preparation of the national qualifications, VQA Professional Competence Certificates are given to individuals who have been successful in the exams carried out according to the national qualifications by the certification bodies authorized by the VQA.

3.1.5. What is the National Qualification?

The national qualifications are knowledge, skills and competencies that an individual should have, and that are determined by the assessment of the authorized certification bodies, and

placed into the national qualifications framework by the approval of the VQA. The national qualifications are placed into the National Qualifications Framework (NQF) by the approval of the VQA according to the Vocational Competencies, Testing and Certification Regulations. National qualifications are created on the basis of one or more occupational standards in the areas where national occupational standards exist. In the areas in which there aren't any national occupational standards, they are created without any change in the application method defined within the content of the national occupational standards.

The national qualifications accepted by the VQA are determined by the following factors:

- The name and level of the qualification,
- The goal and rationale of the qualification,
- The related sector with the qualification,
- Training and experience requirements indicating features like form, content, duration, which are required for the qualifications
- Professional standards, professional standards units/duties or qualifications units that form a basis for the qualifications
- Learning outcomes required for the acquisition of the qualifications
- Assessment procedures and principles to be applied for the acquisition of the qualifications, the minimum testing materials necessary for the assessment, and assessment criteria
- The validity period of the qualification certificate, renewal terms, conditions related to the supervision of the certificate holder if necessary

3.1.6. Development of the National Qualifications

National qualifications drafts are prepared in accordance with the principles specified in the Vocational Qualifications, Testing and Certification Regulations and the National Qualifications Format determined by the VQA with the work of the following institutions or the joint work of some of them:

- Formal and non-formal education and training institutions,
- Accredited certification bodies,
- Organizations that prepared national occupational standards,
- Professional organizations,
- Institutions operating certification of personnel and having made a pre-application to the Institution to be authorized

The organizations wishing to prepare/develop national qualifications draft can apply to the VQA after filling the National Qualifications Preparation/Development Application Form.

The Placement of the National Qualifications into the NQF:

The organizations that prepare or develop national qualifications draft had in their draft to the VQA to be recognized as national qualifications. Drafts are published on the institution website for at least 30 days to receive public opinion. The organization that prepares the draft sends it to the VQA after finalizing the draft in accordance with the opinions and recommendations of the public and the relevant organizations and institutions. These drafts are examined in terms of the procedures by the Department of the VQA Testing and Certification and the ones found suitable are broached to the relevant sector committee to be examined and evaluated in terms of the principles. The sector committee examines the national qualification draft and the studies with respect to this and carries out its evaluation. The decision of the sector committee regarding the evaluation is submitted to the Board of Directors. The drafts approved by the Board of Directors are recognized as national qualifications, and placed into the NQF.

Since May 2015 a total of 274 National Qualifications in 12 sectors have been published by the Vocational Qualifications Authority.

3.2. European Credits System vs. National Grading Systems

European Credit Transfer and Accumulation System (ECTS) is a crediting system in which a student's/learner's total work load (time spent) is accepted as sixty (60) credits, a (1) credit corresponds to 25-30 hours of course work, and courses are credited in this context in order to increase the transparency of the education systems, to facilitate student mobility between the counties in the European higher education area with the credit system, and to attain the targeted learning outcomes for an educational program in an academic year in general (Table 4).

Credit (ECTS) and students workload for the each level of the HEQFT:

The total education time, credit (ECTS) and student workload ranges for the each educational level within the scope of the HEQFT (associate, bachelor, master and doctorate) are presented below (Table 4):

Table 4. The Total Credit (ECTS) and Student Workload Ranges for the HEQFT levels*

HEQFT LEVELS	DURATION (YEAR)	TOTAL ECTS CREDITS (YEAR x 60 ECTS)	TOTAL STUDENT WORKLOAD (HOUR) (1 ECTS= 25- 30 hours)
8th Level (DOCTORATE)	3 - 4	180 - 240	4.500 - 5.400 6000 - 7.200
7th Level (MASTER'S)	1,5 - 2	90 - 120	2.250 - 2.700 3.000 - 3.600
6th Level (BACHELOR'S)	4	240	6.000 - 7.200
5th Level (ASSOCIATE'S)	2	120	1.00 - 3.600

*It is calculated on the basis of taking an academic school year as 60 ECTS and 1500-1800 hours of workload.

Universities in Turkey have been very successful in ECTS label which is given by the European Commission and which shows the success and quality in ECTS applications and 31 universities have been awarded with this label which is hard to get. In addition, 73 universities have also received Diploma Supplement Label [30]. Pamukkale University was awarded the Diploma Supplement Label in 2011 and ECTS label in 2012 [31].

With the amendment made in the law numbered 2547 that regulates the higher education in Turkey in 2011, the Higher Education Council (HED) asked all universities to complete their works in 2013 within the framework of the application process of the Higher Education Qualifications Framework in Turkey (HEQFT) that became binding by defining the credit system based on workload and in the following process including the national qualifications framework into the legislation. With the completion of the works, ECTS system was matched with the national grading system in Turkey. The national system in all over Turkey is based on the ECTS principle.

3.3. Specific National Strategies and Programs for Clean Environment and Sustainable Developments

When Turkey is considered in terms of sustainability, it should be considered in three dimensions including economic, social and environmental. Sustainable development approach requires the integration of a country's all economic and social policies with its environmental policies and strategies. However, while Turkey takes its place in the economic and social growth race within the scope of sustainable development, it hasn't taken the environmental dimension into account adequately and it still doesn't. In Turkey, by accepting the fact that the concept of Sustainable Development is based on the environment, national strategies, objectives and practices should be created with reference to this reality [20].

Strategic Goals and Objectives of Republic of Turkey Ministry of Forestry and Water Affairs About Clean Environment Between 2013-2017 [32].

Strategic Goal: 1- Increasing the institutional capacity and the service quality

Target 1: Developing cooperation with agency-institute, NGOs, and universities about the fields that the Ministry participates in, and increasing the public awareness

Target strategies to reach this target: 1- Developing joint projects and models with universities and NGOs, private sector, state institutions and organizations.

2- Increasing the public awareness through notifications, raising consciousness and practising to create awareness together with NGOs, universities, relevant institutions and organizations, and private sector.

Target 2: Directing the human resources efficiently

Target strategies to reach this target:

1- Employing the personnel in the right position in the area of expertise.
2- Doing researches aimed at increasing the work quality of the employers.
3- Giving in-service trainings to the Ministry personnel every year.
4- Raising the levels of the personnel's vocational training and foreign language.
5- Ensuring equality of opportunity between men and women personnel within the Ministry activities and human resources management.

Target 3: Improving the information systems and ensuring the information security

Target strategies to reach this target:

1- Conducting an analysis study aimed at software needs of units.

2- Gathering the data produced by units on a common database.

3- Developing the necessary hardware and software background for the information system to sustain its security against threats and risks, and giving trainings to the personnel about this issue.

Strategic Goal: 2- Developing national and international policies about forest, water, biological diversity and meteorology matters and having the developed policies implemented efficiently

Target 1: Fulfilling the obligations taken place in bi- and plurilateral agreements, and international treaties

Target strategies to reach this target:

1- Reporting and monitoring system will be established together with the United Nations Convention to Combat Desertification (UNCCD) Secretariat.

2- 'International Research and Training Center on Combating Desertification' will be established within the scope of the Conference on Interaction and Confidence-Building Measures in Asia (CICA).

3- Plans and projects will be performed and carried out within the frame of the legislation related to the EU and international organizations (intended for FAO, UNCCD, IKB, TIKA Caucasus and Middle Asian Countries).

4- International structures will be constituted about the assigned position of the Ministry.

Target 2: Developing interaction with international institutions and organizations, and countries

Target strategies to reach this target:

1- New cooperational works in the international arena will be done within the frame of bi- and plurilateral agreements.

2- Courses of action related to the countries which are important to Turkey will be prepared and Turkish experiences will be transferred.

3- In the EU accession process, projects to implement the instructions concerning the Ministry's assigned positions will be done.

Target 3: Developing policies about the issues concerning Ministry's assigned position, monitoring, directing and coordinating the activities conducted by the affiliated institutions

Target strategies to reach this target:

1- Regulation, circular, instructions, etc. will be arranged about the issues concerning our Ministry's assigned position.

2- The activities conducted by the affiliated institutions will be monitored and evaluated.

Target 4: Providing the sustainable watershed management

Target strategies to reach this target:

1- Watershed databases will be formed with the logic of geographic information systems.

2- Planning which is specific to watershed will be made, and action programmes will be formed.

3- Special provisions to keep a protecting-using balance in drinking water basins will be determined.

4- Water allocation plans for watershed-based sectors will be prepared.

5- Researches will be done about the effects of the climate change to water resources and floods, and precautions to take will be determined.

6- Policies and strategies aiming to decrease the negative effects of drought will be developed; Dry Spell Management Plans will be prepared.

Strategic Goal: 3- Struggling against desertification and erosion actively

Target 1: Identifying and monitoring the regions which were and may be exposed to desertification and erosion

Target strategies to reach this target:

1- Monitoring systems will be developed to struggle against desertification and erosion.

2- Activities in struggling against desertification and erosion will be determined together with the relevant institutions.

3- Model stations and test fields will be built with educational and search purposes in the fields that can represent different ecosystems in Turkey.

4- Soil map will be updated with the cooperation of the relevant institutions within the scope of struggling against desertification and erosion.

Target 2: Preparing plans for struggling against desertification and erosion

Target strategies to reach this target:

1- Priority areas that are sensitive to desertification will be identified.

2- Course of Action for Struggling against Desertification and Erosion will be prepared.

3- Practice trainings in Turkey will be increased about the desertification, erosion and avalanche control.

4- Model applications and cooperations will proceed in "Projects of Constructing Fire-Resistant Forests" with the aim of decreasing the harms of forest fires and preventing fires from starting.

5- "Project of Preventing Wind Erosion" model application studies will proceed.

Strategic Goal: 4- Protecting and enhancing water resources, and providing sustainable management for it

Target 1: Contributing to national water policy to be developed

Target strategies to reach this target:

1- National and international water legislation will be scanned; studies for the harmonization with the EU Acquis will carry on.

2- Code, instructions, notification, circular and guide documents will be prepared according to the laws concerning water.

Target 2: Determining the qualitative classifications and quantities of surface and underground waters including coastal waters, and setting up a monitoring system

Target strategies to reach this target:

1- Water quality standards and environmental targets will be determined.

2- Antipollution measures will be taken by identifying the present usage of water resources, water quality and the contaminating sources which affect water quality.

3- Sensitive areas for municipal sewage and the ones in terms of nitrate sensitivity will be determined.

4- The quality category of surface water resources from which drinking water is obtained will be determined.

5- By setting up real time monitoring systems in river watersheds, strategies for sustainable water management will be determined on the basis of watershed.

6- Changes in water quality will be measured on the spot with the help of portable lab for water analysis.

7- In 25 watersheds in Turkey, points of references will be determined concerning monitoring water quality and quantity.

8- Monitoring networks will be set in the manner that it will include biological, chemical, physicochemical and hydro-morphological quality elements.

Target 3: Setting national water information system

Target strategies to reach this target:

1- Water resource inventories of provinces will be completed.

2- To form the water database, existing information about water will be gathered from state institutions and organizations and will be harmonized.

Strategic Goal: 5- Protecting the biological diversity actively and providing sustainable management

Target 1: Ensuring the protection, improvement and amelioration of species and ecosystems

Target strategies to reach this target:

1- New protected areas will be determined; inventory of survey will be made and be declared.

2- Database for the protected areas will be created.

3- Damaged ecosystems will be identified, and rehabilitation studies will be carried out in line with the prepared courses of actions.

4- Inventory studies will be carried out in wildlife development areas.

5- Courses of action for species will be prepared and rehabilitation centres will be founded.

6- Studies to found the Biodiversity Institute of Turkey will be conducted.

Target 2: Providing the sustainable management of the protected and sensitive areas

Target strategies to reach this target:

1- Landscape projects will be conducted and implemented.

2- Monitoring and evaluating system will be set for the protected areas.

HUMAN
RESOURCE
DEVELOPMENT
CENTRE

ECO
Center

3- Required facilities will be built in national parks, wildlife development areas, natural parks, wetlands, etc.

Target 3: Providing sustainable wildlife and hunting management

Target strategies to reach this target:

1- Plans for Annual Protection and Control, and Hunter Training will be made within the frame of Sustainable Hunting Strategy and Course of Action.

2- A revision of existing production stations will be made and the production capacity will be increased.

3- At the end of 2012, the project Produce Your Own Hunt will be prepared, and it will be put into practice between the years 2013-2016.

4- Sustainable Forestry and Fisheries Strategy and Action Plan will be prepared by the end of the year 2012, and will continue to be practiced until the end of 2016.

5- Locations will be determined for the establishment of new trout production stations, and production stations will be set up here.

6- Awareness of hunting tourism and application diversity will be increased.

7- Commissions will be established about applications of the Convention on International Trade In Endangered Species of Wild Fauna and Flora (CITES), and Wildlife Development Areas (WDA) Management Plans, and studies will be conducted.

8- Training seminars will be organized about the subjects of Turkey birds, bird ringing with bird migration routes.

Regional Strategies:

Denizli Chamber of Environmental Engineers (Semsioglu Construction and a company which gives services of environmental consulting as well):

Factories are given services of environmental consulting via this company in the light of the information taken from Tevfik Basmaci – the person in charge. The workers, administrative and technical staff at the factory are given (special) training concerning environment with regard to the sector, trainings are given as power point presentations. In accordance with the time shift of workers, all the workers in the factory are given trainings about the waste of the issue in which the factory works. For example, in Er-Bakır where copper cables are produced, trainings are given about subjects such as making the waste which is disposed to environment harmless during that production. Also, colleagues are given professional chamber trainings.

The congress about the National Environment Management which is held in every two year and 11th of which will be held this year will take place on 15-17 October, 2015. (This convention has continued for about 20 years and it is held as open to everyone.)

Republic of Turkey, Ministry of Food, Agriculture and Livestock, Denizli:

Trainings about environment are given. For example, trainings are given to farmers who do good agricultural practices about the issues of integrated struggling methods. In this context, proper behaviour and hygiene trainings are given to individuals through asking them what they do regarding the environment.

Trainings about sustainable environment are given for farmers not to use pesticides in a wrong way and to use them on time. (It has been observed that drug companies have intimidated farmers so that there could be more drug selling, and also they have caused more drugs than needed to be thrown into nature at inappropriate times.)

Nitrate Instructions Training: This training includes the identification of nitrate-sensitive areas and the training with emphasis on these matters. This training will start in the summer of 2015.

Denizli Metropolitan Municipality:

- Works related to environment which are implemented by municipality
- Trainings were given to housewives personally about recycling between 2007-2010, visiting houses one by one about issues like which materials to use as recycling, and what to put into which bag.
- Denizli was chosen as the clearest environment in 2009, and also the clearest city in 2010.

There were some trainings about removing common rubbish bins in neighbourhoods and coffeehouses and having your own one. This training was given in 2010-2011.

- Since Denizli became a metropolitan city, garbage collection has been assigned to district municipalities. Still, cleaning of Acipayam Road, Izmir Road, Ankara Road and boulevards is belonged to the metropolitan municipality. Private companies handle these works either with machinery or hand.
- Solid waste collection is also made by companies in accordance with environment and urbanization regulations, and its control is carried out by the environmental engineers in the municipality.

Contributions have been made to economy, and greenhouse gas emissions are being avoided through subjecting medical waste collected by licensed vehicles to sterilization, ensuring to bring hazardous waste into a state of domestic one and generating electricity for 3000 households from landfill gas.

EIA studies have been made and geothermal facilities have been established.

- With the permission of the Ministry of National Education, at schools, a lot of activities are made in 4th and 5th grades such as environment-related trainings, seminars, gifts, T-shirts, books, environment-related games, theatres, recycling campaigns, and some teachers from the school participate in these trainings.

- On June 5, 2015, on the occassion of the World Environment Day, it's planned that an organization will be held in Catal Cesme Chamber Theatre in which games, poems, theatre performances and many similar things will take place, and as another organization, environment-related festivals will be held in Babadag.

In addition to these, under health branch, collected waste batteries, waste oil and electrical waste are transferred to the respective company, and are used as recycling here.

Posters, brochures and other materials are prepared and used about environmental education.

Studies that DENCEV (Denizli Environmental Quality Lab) launched in also districts like water analyses, coal analyses, refinery cleaning operations, temporary care centres for homeless animals are underway.

Denizli Municipality, a member of the World Health Organization, set out with the slogan "For a healthy life, health be your prize" in previous years, and from 2014 on, adopting the slogan "For a healthy life, environment be your prize", it has organized meetings and presentations in some provinces (in Yalova in May 2015) with the purpose of promoting environmental awareness.

It is known that 72 municipalities from Turkey were members of healthy cities in 2012, but this number varies because of the high amount of membership fees that was paid every year, and the possibility of some municipalities to leave should be considered. Gift-winning wastematics are placed as an incentive in exchange for points in some parts of the city, and waste which gives damage to environment is collected here.

Some of the activities of the municipality are to apply discounts and provide incentives for companies on specific issues.

For example, 50% reduction in electricity consumption is made. All businesses can benefit from this incentive if they get no penalties related to the environment according to the article 29 of the environmental law.

The support granted to the legal persons in the Organized Zone is given by the Ministry of Industry. The condition that there have to be trained persons who received environmental officer document in factories is required. Only the firms with the eco-label certificate stating that all requirements are met about environmental conservation are permitted to do export. Also, these companies are audited by officials from abroad.

Denizli Provincial Directorate of Environment and Urbanisation:

Twice a year, teachers and students are provided with trainings, materials, seminars, and movie screenings and presentations are made.

Garbage collection campaign was made as visuality about clean environment on 1-7 May.

The institutions that make up financial support and programmes for adult education in our country: The Scientific and Technological Research Council of Turkey (TUBITAK), Southern Aegean Development Agency (GEKA), Republic of Turkey Ministry of Forestry and Water Affairs, Republic of Turkey Ministry of Environment and Urbanisation

3.4 Selection of Key Qualifications for Adult Learning Providers in the Clean Environment Area

The persons who will serve in people's training must be trained in a very detailed manner in the clean environment area. They must have very detailed knowledge about the following issues especially. According to the data obtained from the Eco Center survey of support, here are the areas in which external support is going to be needed in the areas of adult education in the following years:

- Environmental Laws, Regulations and Notifications,
- Climate Changes,
- Evaluation of Waste,
- Bio-based Industry,
- Medical Waste,
- Waste Oil,
- Waste Vegetable Oil,

- Packing Wastes,
- Worn-out Tires,
- Worn-out Vehicles,
- Waste Electrical-Electronic Items, Mine Dumps,
- Dangerous Wastes

4. National Support Evaluation of Adult Education in Terms of Innovation, Success and Sustainability

It is observed that education in adult training is carried out in accordance with the needs in national sense. Educational backgrounds and durations of adults are expressed to be suitable in general to educate them. Projects and financial supports for innovative education solutions are present. Republic of Turkey Ministry of Forestry and Water Affairs, Republic of Turkey Ministry of Environment and Urbanisation, Republic of Turkey Ministry of Food, Agriculture and Livestock, and universities provide national support and trainings in terms of development, success and sustainability of adult education. Besides, institutions like The Scientific and Technological Research Council of Turkey (TUBITAK), Southern Aegean Development Agency (GEKA), Agriculture and Rural Development Support Institution (ARDSI) provide financial support for innovative and sustainable selected projects. Educations are generally as follows: *short-term courses about technical expertise issues, in-service trainings of staff in facilities belonged to the institution, research tours to the demonstration areas, and new skills-gaining related to business.* It is expressed that the people in Turkey have little knowledge about new developments in Europe, and EQF and ECVET systems in this area. Still, they agree on the fact that these systems would help develop a better career for adult education and better employment opportunities.

Some of the training courses or the workshops that were made concerning clean environment in national and regional context:

- Workshops on solid waste (by the municipality),
- In-service trainings,
- Environmental officer trainings,
- In-house staff training,
- Denizli Metropolitan Municipality, Environment Protection Office, waste training,
- Waste training for schools, mukhtarates and mothers,

- -Environmental officer training for environmental engineers and other engineers,
- Reacquisition and disposal of electrical and electronic waste,
- Good agricultural practices,
- Organic agriculture training,
- Nitrate-using training,
- Trainings for environmental consciousness at schools,
- Metropolitan Municipality Environment Day, June 5 events,
- Awarded waste collection trainings,
- Medical waste management,
- Nature and Environment Foundation (DOÇEV) training activities,
- Air quality modeling training,
- Training for regulation of carbon trading,

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