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Elective Courses as a Dialogic Environment: Sustainable Design in Interior Architecture Course

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Abstract: *This study is about the conceptual form, structure, process and outcomes of the elective course of Sustainable Design in Interior Architecture prepared based on the dialogism concept of Mikhail Bakhtin. Dialogical education based on Bakhtin's concept of dialogism is a set of relationships and interactions based on the principles of collective, reciprocal, supportive, cumulative and purposeful. In this context, the dialogic environment is offered as a course structure recommendation. Four dialogic environments comprised of the first opening current subjects to discussion, the second allowing interdisciplinary inquiries, the third establishing connection with the design studio and the fourth transforming conceptual knowledge into a design product are developed at the course. In the first dialogic environment, the historical background of the sustainable design, and the studies, projects and researches in this field being the current subjects of the professional environment are shared with the students with a critical approach. The second dialogic environment is a coffee story application in the form of a disciplinary discussion. The critical approach application in the context of environmentally sensitive design aims for dialogic interaction with the design studio. The transformation of the conceptual knowledge into a design product has been achieved with an interior architecture in a slow city. The dialogic environment is analyzed with student projects and a survey given to the students. The data collected with the survey are evaluated based on dialogism points and course structure. In conclusion, the dialogic environment and unconventional applications have raised awareness among students regarding sustainability and directed them to critical thinking. However, the formation of the dialogic environment with three applications has made it difficult for the students to focus on the subject. Therefore, the dialogic environment for the elective courses should be supported with fewer applications or various questions under a single application.*

Keywords: *Interior architecture education, elective course, creativity, dialogic, sustainable design*

Diyaloji Ortamı Olarak Seçmeli Dersler: İç Mimarlıkta Sürdürülebilir Tasarım Dersi

Özet: *Çalışmada, Mikhail Bakhtin'in diyaloji kavramına temellenerek kurgulanan İç Mimarlıkta Sürdürülebilir Tasarım seçmeli dersinin kavramsal yapısı, strüktürü, süreci ve çıktıları ele alınmaktadır. Bakhtin'in diyoloji düşüncesine temellenen diyolojik eğitim; ortaklaşa, karşılıklı, destekleyici, birikimli ve amaçlı ilkelerine dayanan ilişkiler ve etkileşimler bütünüdür. Bu bağlamda diyaloji ortamı, ders strüktürü önerisi olarak ortaya konmaktadır. Derste, meslek ortamının güncel konularını tartışmaya açan, disiplinlerarası sorgulamalara izin veren, tasarım stüdyosu ile ilişki kuran, kavramsal bilgiyi tasarım ürününe dönüştüren dört diyaloji ortamı geliştirilmiştir. Diyaloji ortamının ilkine karşılık, meslek ortamının güncel konusu olan sürdürülebilir tasarımın tarihsel arka planı, bu konudaki çalışmalar, projeler ve araştırmalar eleştirel yaklaşımla öğrencilere aktarılmıştır. İkinci diyaloji ortamı, disiplinlerarası*

sorgulamalara karşılık gelen bir kahve hikâyesi uygulamasıdır. Çevreye duyarlı tasarım bağlamında eleştirel sorgulama uygulaması ile tasarım stüdyosu ile diyalojik etkileşime girilmesi hedeflenerek, üçüncü diyalojik ilişki kurulmuştur. Dördüncü diyoloji ilişkisi olan kavramsal bilginin tasarım ürünü dönüştürülmesi, sakin şehirde iç mimar projesi ile sağlanmıştır. Bu dört diyaloji ortamı; öğrenci çalışmaları ve öğrencilere yapılan anket ile analiz edilerek değerlendirilmiştir. Anketten elde edilen verilen, diyaloji noktaları ve dersin strüktürüne bağlı olarak ele alınmıştır. Sonuçta, diyaloji ortamının ve alışılmışın dışında kurgulanan uygulamaların öğrencilere sürdürülebilirlik konusunda farkındalık kazandırdığı ve eleştirel düşünmeye yönlendirdiği görülmüştür. Ancak diyaloji ortamının üç uygulama ile şekillenmesi, öğrencilerin, konuya odaklanmasını zorlaştırmıştır. Bu nedenle seçmeli dersler için önerilen diyaloji ortamının, daha az sayıda uygulama veya tek uygulama altında çeşitlenen sorular ile desteklenmesi önerilmektedir.

Anahtar Kelimeler: *İç mimarlık eğitimi, seçmeli ders, yaratıcılık, diyaloji, sürdürülebilir tasarım*

1. INTRODUCTION

In the interior architecture education like all design-based disciplines, the design studio should allow development and change. The mandatory courses should provide theoretical and practical knowledge and a number of elective courses focusing on current subjects should be made available. The design studios form the core of the interior architecture education and the information needed for design studios is supported with mandatory and elective courses. Therefore, any information obtained, and any application performed in mandatory and elective courses direct the project studio and are of great importance. Özğenel asks the following question about this conventional approach in design education:

The generation, evaluation and sharing of the information regarding design can be formed in the context of a network exceeding the studio limits. Can this transform the conventional education model, where the design studio/workshop is the 'focus' and the remaining courses are the 'service', into a network environment where all components of the program can be managed in a way to develop the information design process, to integrate different external actors into the process and to allow their contribution? [1]. As stated in the above citation from Özğenel, the education model should go beyond the approach where the courses other than the studios are considered as service [1]. Moreover, the fast developing and shaping nature of the current era requires questioning how to keep up with the current developments in the context of education. In this context, the 4th İstanbul Design Biennial has focused on the *"School of Schools"* theme under the curatorship of Jan Boelen and aimed for triggering a discussion regarding design education. Boelen states that the design education has not changed a lot even though it has been 99 years since Bauhaus while the world's order has changed remarkably. He claims that the approved design education models used repeatedly do not keep up with the times and do not provide the answers we need [2].

The elective course of Sustainable Design in Interior Architecture developed for ensuring the elective courses to go beyond being service courses and keeping up with the times is opened for discussion in the above explained interior architecture education. The course focuses on sustainability, considered as a main heading where environmental problems and efforts to find solutions are discussed. The course of Sustainable Design in Interior Architecture was taught by the Department of Interior Architecture and Environment Design as a shared elective course at the undergraduate program at the Faculty of Engineering of İstanbul Kültür University (İKÜ) during the term of Autumn 2016-17. This course is available to departments of architecture, interior architecture and environmental design since it is a shared elective course. Elective courses can be taken by all students excluding the first-year students.

The course structure is formed on two main problems. The first is what an elective course is and how it should be. The second is how the students learn creative thinking at an elective course. It is planned to find

the answers to these problems with the dialogism concept of Bakhtin. Dialogic comes from dialogue in terms of etymology. However, it is a multi-dimensional and complex network as compared to the dialogue [3]. That is because one of its main components is interaction and the idea of one subject's becoming closer to another subject through its own subjectivity. Dialogic teaching is ensured by new dialogic areas opened by different perspectives for the co-generation of information. In this context, interactions and relationships are the main common point of dialogic teaching [4, 5].

First, the place and structure of elective courses in interior architecture education are examined. Then, the structure and process developed based on dialogism concept and supporting creativity are presented for the course of Sustainable Design in Interior Architecture. The course is shaped by four creative dialogic environments comprised of the first opening current subjects to discussion, the second allowing interdisciplinary discussions, the third establishing connection with the design studio and the fourth transforming conceptual information into a design product. This structure is presented with student applications[1] and the dialogic environment is analyzed and evaluated with a survey given to the students.

2. ELECTIVE COURSES IN INTERIOR ARCHITECTURE EDUCATION

The interior architecture education in Turkey first started in 1925 at Interior Decoration Workshop at Sanayi-i Nefise Mektebi Ahalisi (İstanbul Academy of Fine Arts which is today Mimar Sinan Fine Arts University) [6]. Today this education is provided at departments of interior architecture and interior architecture and environment design of different faculties at around sixty universities. This creates a pluralist environment and ensures plurivocality at the same level in interior architecture education. However, this multi-layered structure should unite on a common ground on some axes in order to support associations at both international and national platforms. For this purpose, the CIDA-Council of Interior Design Accreditation accredits education institutions and programs while the ECIA-European Council of Interior Architects accredits professionals and professional chambers [7]. Turkey has initiated Bologna process in order to ensure unity at national and international level and the high education institutions have undergone a new restructuring for this purpose.

Bologna process is a system developed to meet on a common ground regarding high education and academic matters and to create a harmonized higher education structure in Europe. Turkey joined this system in 2001 and the universities have restructured their education programs as part of Bologna process [8]. The departments of interior architecture have been affected by this process and have undergone a new reformation process. While the design studios continue to be the focus of education, 25% of the education is comprised of elective courses. Elective courses are included in education programs with different contents and scope under different names such as elective university course, elective department course, elective faculty course, elective major area course, and elective external area course [6].

As the quantitative value of the elective courses in the interior architecture education programs increases, it is of great importance that their quality should increase at the same level. The elective courses should go beyond the systems where only theoretical information is provided to the students and exams are held to evaluate whether the students have learned the information, they should learn according to the set education goals. It is of great importance that the contents of the elective courses should be open to change and development with innovative and creative perspectives.

[1]Projects by different students are selected as samples for each application and the projects of the students who attend the class and complete their projects are used in the study.

The students are free to select among elective courses based on their areas of interest and desires. This offers the students to decide on their areas of expertise and provide in-depth information about the related subjects. However, in order to achieve this, the course contents should be in parallel to the today's education approaches and should focus beyond the unilateral transfer of information. The course structure can be enriched with different methods such as visits, research reports, design processes and production applications instead of classical methods. Moreover, since it is possible to open elective courses on current subjects, they have the potential to become a junction point between the project courses and today's professional environment. As part of this study, this junction point is planned to be ensured with the dialogic environment to be established at the course and this will also support creativity.

3. ELECTIVE COURSE: CREATIVE DIALOGIC ENVIRONMENT

According to dialogism concept developed by Mikhail Bakhtin, the truth does not emerge inside the brain of a single person and cannot be found there; it will only emerge between the people looking for the truth together and their dialogic interactions process [9]. Even though the dialogism concept is developed in its essence for the linguistics based on words, it is an interaction between plural meanings and thus, considers the subjects to be plural. Dialogism is not the speaking of two subjects, but is plurivocality, in other words, the speaking of several subjects. Contexts and interactions in dialogic thinking are continuous and these interactions include counter existences and struggles [10].

Dialogic teaching is based on five principles as collective, reciprocal, supportive, cumulative and purposeful, which aim for collaboration between the teacher and students. The principle of collective means that the teacher and students apply the education strategies together. The principle of reciprocal means that the teacher and students share ideas and develop alternative viewpoints. The principle of supportive means that the students help each other to generate information in a learning environment where ideas are articulated freely. The principle of cumulative means that the teacher and the students build on their own ideas and connect them into coherent lines of thinking. The principle of purposeful means that the teacher directs the communication based on the purpose of the teaching [4, 5]. The dialogic model in education means interaction, communication, partnerships, associations, connections and relations. The education model where the dialogic perspective is adopted allows creative thinking.

As stated by Melikoğlu Eke, the creative thinking process is dynamic and variable. Being creative is a critical, argumentative thinking process which requires inquiries [11]. The essential elements of creativity are critical thinking, multi-directional thinking, creating different solutions to the same problem and being interdisciplinary. It is also a common belief that the creativity is a learnable phenomenon and can be improved through education [12]. In this context, creativity and creative thinking are a milestone with several components and are equal to experience in design education. Educational activities with designed ways of learning and processes ensure *"self-expression"* and *"self-fulfillment"* which develop and support the creativity of the students [11]. Creativity and dialogic teaching model intercept on the same level in this context and have the potential to create a system supporting each other.

The course of Sustainable Design in Interior Architecture is formed based on the dialogic teaching model as a voyage of creative discovery. The dialogic environment established at the elective course aims to support the creativity of the students. It can be ensured with the communication based on interaction between the teacher and the students as well as the associations and relations to be established. The subjects and problems discussed at the course have a dialogic relation with each other.

A creative dialogic model with the following features is recommended:

- Discusses current matters of the professional environment,

- Allows interdisciplinary inquiries,
- Establishes connection with the design studio,
- Transforms conceptual information into a design product

The "sustainability" is the main concept of the course as the current subject of the professional environment, being the first of the above dialogic relation points encouraging creative thinking. The remaining three dialogism points are shaped by three applications as can be seen in Figure 1. During the first seven weeks of the course, the historical background of the sustainable design, and the studies, projects and researches in this field are shared with the students with a critical approach. During the last seven weeks of the course, a technical trip is organized and the interior architecture application in a slow city being the fourth dialogic environment is launched.

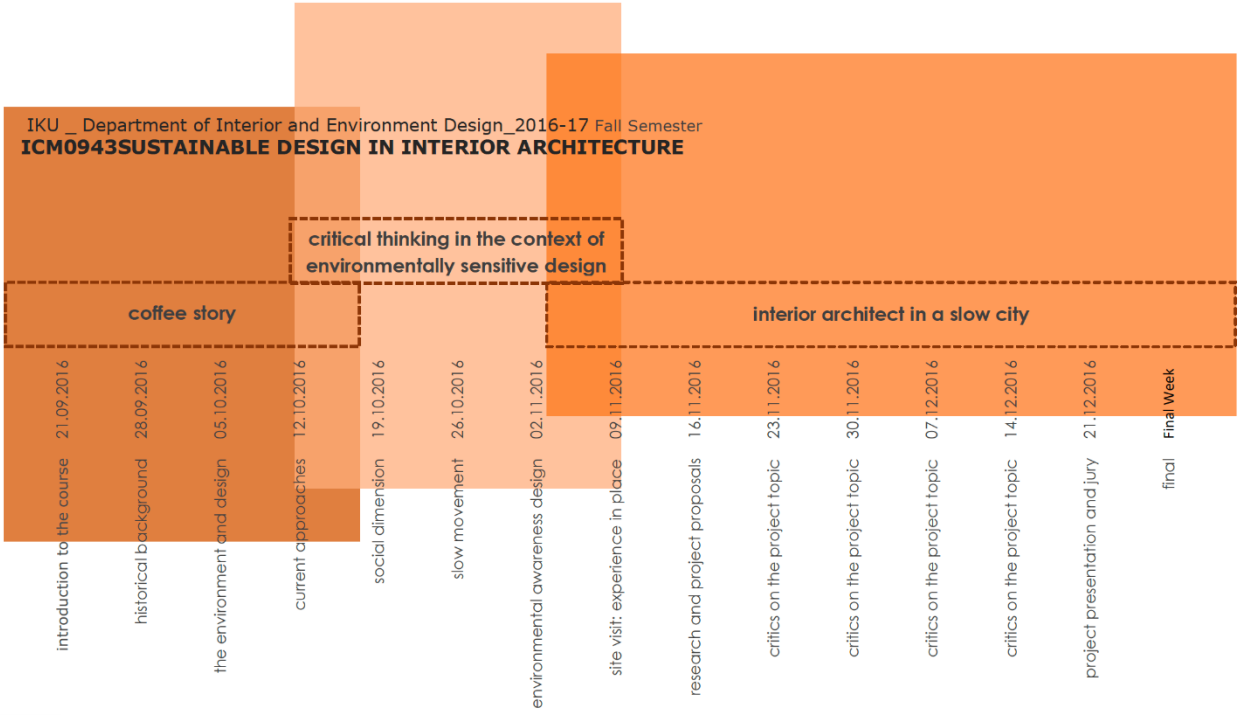


Figure 1. Structure of Sustainable Design in Interior Architecture Course

3.1. Dialogism I: Discussing current matters of the professional environment "Sustainability"

Environmental pollution, unpredictable environmental destruction by the capital, global climate crisis and fast consumption of natural resources are the top problems requiring urgent precautions. Solutions to these problems are offered and tried to be implemented during various periods under different names as green, ecological, green design, ecological design, eco-design, energy-effective systems and energy efficient. The sustainability concept, on the other hand, extends the scope of all these solutions and covers all of them.

Sustainability is defined as follows by the Brundtland report issued by the World Commission on Environment and Development (WCED): *"meeting the needs of the present without compromising the ability of future generations to meet their own needs"* [13]. Sustainability is to live *"by taking everything into consideration"* and not *"despite everything"* [14]. Sustainable design defines the designing processes by taking into consideration environmental, social and economic dimensions as a surface of agreement. Sustainable design idea is an approach affecting all disciplines with its multi-dimensional outcomes as environmental, cultural, social, technological and economic. Design products and productions are created,

contests are organized, practical and empirical studies are carried out and symposiums are organized with this approach. However, the sustainability concept considered as important by all professions, not just by the design field, for the sake of environmental and social responsibility is engulfed into the whirlpool of the consumption culture. Sustainability is used as a label for fashion and consumption, taking its meaning away from its actual meaning.

While environmental approaches focus on consumption, others see this situation as a disaster scenario. A panic environment is created with mass manipulations where the assumptions are never fully realized, and it is claimed that a new market is created under the name of environmentally friendly products. The parties making this claim re-interpret the statistics and state that the environmental problems are exaggerated and the solution to them can be achieved with the cooperation of science and technology. These parties are criticized to defend companies with an economist perspective [15]. The problem is related to that what the interaction of the built environment with the communication coincides with in terms of society and how it responds to the environmental crisis remain in the background. The subject is reduced to energy efficiency and shell design. What is critical is to open to discussion what environmental approaches mean in design-based disciplines by foreseeing beyond the meanings we have used [16]. *"All environmental problems can be solved; the hunger and poverty can be eliminated, and the distribution of income can be balanced. However, this can be achieved by giving new meanings to sustainable development and improvement, instead of lingering over technical details. ...while we continue to play environmentalism with the concepts given to us, the capital will continue to plunder the environment and the society"* [17].

Even though sustainability idea provided as the solution of environmental problems has become an object of fashion and consumption in today's world, it is of great importance to design with environment in mind for the future of the world. As told by Parker, those who can give the answer to what the future scenario would turn into will be those who can shape the future. Therefore, the people studying design today and the education provided to them are of great importance [18]. Using this perspective, the conceptual background and applications of the course of Sustainable Design in Interior Architecture are designed with an integrated and critical approach on the sustainability. Moreover, the sustainability concept is opened to discussion at the course and a dialogic environment is established with the current subject of the professional environment.

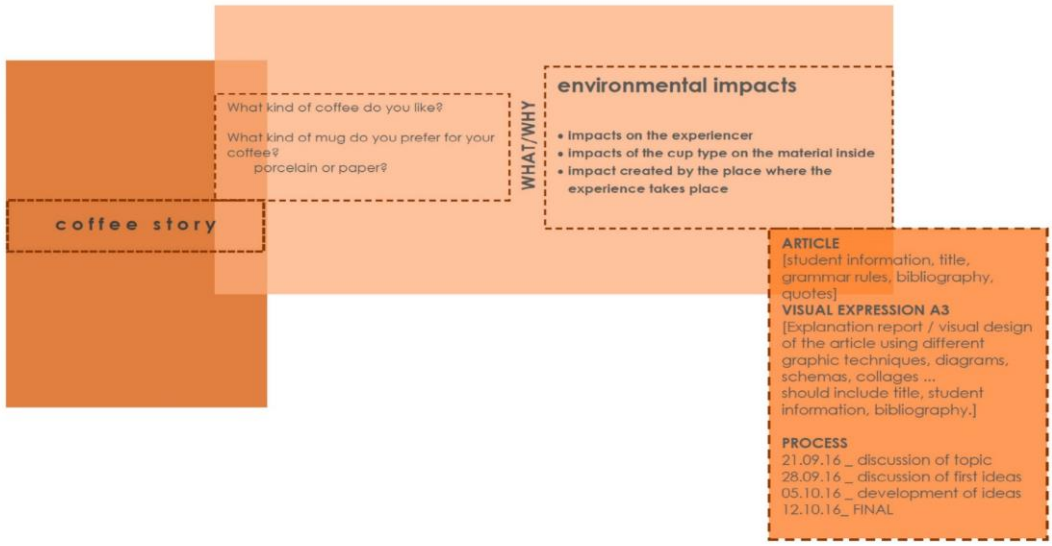
3.2. Dialogism II: An interdisciplinary inquiry: "A coffee story"

The dialogic environment of interdisciplinary inquiry is established with a coffee story, being the first application of the course. Looking at the subject and creating relations with an interdisciplinary point of view encourage multilateral thinking and support creativity. This application has also introduced the course method and process to the students.

A period of 5-week is planned for the coffee story problem and its solution. During the first week, only two questions are asked to the students with the purpose of making them think about a subject they always experience or have never experienced. The first question is *"What kind of coffee do you like?"* After they share the type of coffee they like or do not like, they are asked whether *"What kind of mug do you prefer for your coffee? Porcelain or paper?"*. The application is shared during the second week. The students are expected to question the preference they make in terms of impacts on the environment. As part of this questioning, it is discussed that the impacts of the process on the experiencer, impacts of the cup type on the material inside (coffee) and the impact created by the place where the experience takes place should not be ignored. The students then are asked to write a paper on their questioning and present this text with visuals by using different graphic techniques such as diagrams, schemas, collages. The information form used to share the application with the students and the application outcomes are presented in Table 1.

According to the examinations made on the studies carried out, the problem has raised awareness in students even if their approaches, outcomes and questioning processes are different. The students have realized how difficult it is to recycle the paper cup and how much energy its recycling consumes due to the chemical treatment made inside the cup. They have also discovered that this chemical is absorbed into the hot product placed in the cup and how hazardous it is to the human health. They have also realized the water consumption and chemical waste problem for the porcelain cups due to the glazing made even though it is less hazardous as compared to the chemical treatment in the paper cup. The awareness raised includes many forms from criticism of the consumption society we live in the decision of using own thermos even though they used to consider the paper cup to be more environmentally friendly.

Table 1. Dialogism II – Coffee Story Application and Its Outcomes



"Why do the humans build nuclear power plants which they are aware to destroy the balance of the nature or kill other beings to smell nice or why does an individual continue to use consciously a product which he is aware to cause damage to the nature? All these only mean that the individuals who have not realized themselves establish a dominance utopia on the nature and tell others "look, how strong I am". (Işıl Gül Çakmak)

"According to the results of the researches and analyses I have carried out, some defend the paper cup despite the information provided and some even do not accept the dangers of paper cup. Since it is an alternative to the plastic cup and is made from the trees, in other words, from the nature, why should it be dangerous? As the people continue to believe this, it seems that it will be continued to be used for a long period of time. Now, drinking my coffee, I cannot decide whether I cause more damage to myself or to the nature?" (Esra Başak).

"The production of paper cups preferred at coffee shop chains because of its lower cost continues in great volume even though they cause major damage to the environment. Should its production be stopped just because of this? Should the humans be expected to stop using this product which makes their life easier? Or should they be aware of the damage they cause to themselves and the environment, use it consciously by assuming responsibility and minimize the damage?" (Yaren Feyza Yalçın).

"Recycling and sustainability awareness should be extended across the world and should be a general rule of the daily life and using a paper cup during our hectic life instead of the liveness and reality of the coffee in a porcelain mug is a preference that we should not overcome in modern times, if the financial dimension is ignored" (Büşra Tetik).

3.3. Dialogism III: Establishing a connection with the design studio "critical thinking in the context of environmentally sensitive design"

The second application aims for establishing a dialogic relationship with the design studio. This goal is achieved by students' criticizing, questioning and thinking about their projects being the outcome of the design studio. That is because critical thinking and questioning are the essentials of creativity. The students are expected to question how they can re-create with environmental awareness a previous project they believe to have completed before.

The second application question is shared as the first application is about to end. It is the questioning of the project completed in the design studio during the previous term in the context of environmentally sensitive design. This questioning and recommendations are presented by using different graphic techniques and texts (Table 2). Discussions are opened and developed on the projects of the students in parallel with the lectures given for two weeks.

While the students re-create their projects in the context of environmentally sensitive design, most of them have focused on how to adapt environmentally friendly technologies into their projects. While the other subjects of sustainability have remained in the background, environmentally friendly technologies have become key solutions. One student has applied a critical approach to the subject, reconsidered his projects with a labyrinth metaphor and used comics to present the problems. It is understood that the students have identified the sustainability concept only with the technology. This shows that they have not understood the critical way of thinking or have problems while using it in practice.

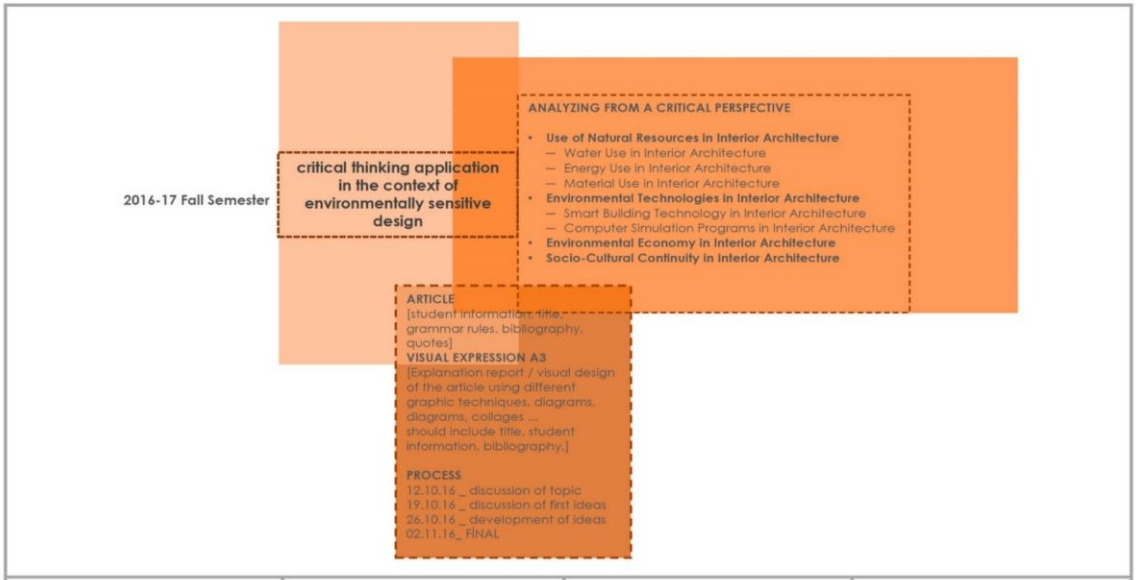
3.4. Dialogism IV: Transforming Conceptual Knowledge into A Design Product "Interior Architect in A Slow City"

During the first seven weeks of the course, the first dialogic environment providing theoretical information, two applications and other two dialogism points are used. During the last seven weeks, applications are provided to support what is learned during the first part with the aim of transforming theoretical knowledge into a design product. According to Bateson and Martin, creativity is to create a new thing by bringing together something already existing with new forms and situations through designing [10]. Accordingly, the "interior architect in a slow city" is given to the students as the project subject and they are expected to develop design approaches.

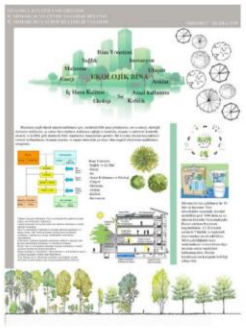
The theoretical knowledge regarding the slow city concept is shared with the students during the theoretical part of the sustainability concept. An on-site visit is organized to Taraklı. During this trip, the municipality has made a presentation about Taraklı and how Taraklı has turned into a slow city. The students have had the opportunity to experience the area and communicate with the residents of the area. Then a workshop process is organized at the course for a period of six weeks and the students have developed their designs in groups.

The projects presented in Table 3 are categorized under two headings as square design and interior design of restored buildings. The project ideas for both subjects are shaped with light structural systems which will cause little interference with the environment and the building. Projects mostly focus on social and economic sustainability and other sustainable design details are limited with technical subjects.

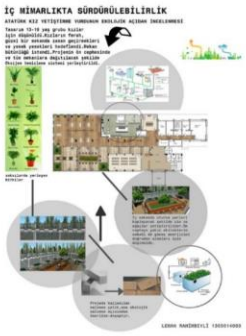
Table 2. Dialogism III – Critical Thinking Application in the Context of Environmentally Sensitive Design and Its Outcomes



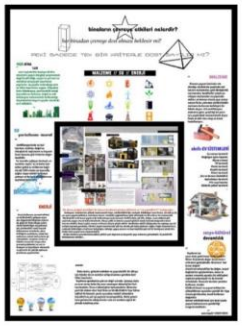
The student has considered the questioning of his project in the context of environmental design as finding one's way in a labyrinth and presented the concepts and problems he has encountered with comics. "Since the living space in the project is taken into consideration in terms of socio-culture, economic and ecological conditions have not been taken into consideration. ...If these conditions are taken into consideration, recommendations regarding the use of materials, energy and natural resources can be developed for the living spaces" (Hande Nur Açıkkolu).



The student evaluates the project in terms of certification systems in the context of environmental design. He looks for the answers to the questions: What are certification systems? Which rules do they include? Which questions should his project provide answers to get these certificates? According to the student, "building management, health and goodwill, energy, water, land usage, transport and material wastes, pollution and innovation should be taken into consideration" (Büşra Top).

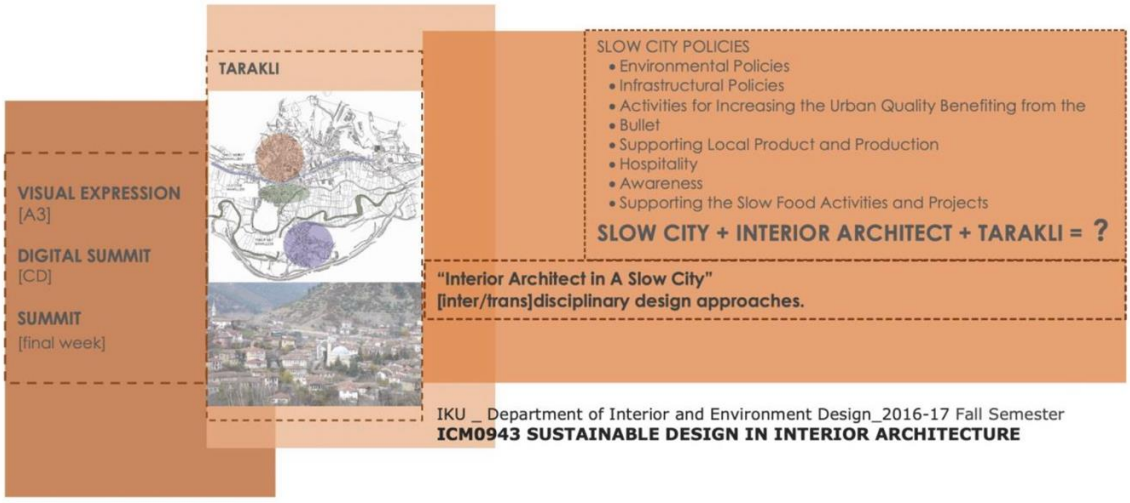


The student evaluating his project in the context of environmental design has focused on the use of green plants and decreasing water consumption in the interior space. Water management is also evaluated as energy management in terms of water reaching the building. "We can examine the projects from different aspects in terms of ecologic features. Water management is an integrated process with many elements and tools. The correct use of the water alone is necessary but not enough for water management. Water management also means energy management" (Leman Rahimbeyli).



The student has focused on adapting environmental friendly technologies to project when evaluating the project in terms of environmental design. He states the following with the following: "It is not difficult to make what is required to be done. Technologies which are less hazardous to the environment and even are not hazardous at all should be used. First these technologies should be developed. Architects should use the new system of Green Building and Sustainable Structure Technologies" (Esra Başak).

Table 3. Dialogism IV – Interior Architect in a Slow City Application and Its Outcomes



This project focuses on the research question of how an environmentally friendly ecological design with a high design value and intellectual infrastructure will be made and designs such as public garden - sky watching area - circulation item - sitting item - green modules in the application of the research question. The reason of the application of the design with such a simple and clear approach is to criticize the developed architectural approach in the system. Therefore, architectural touches are kept as minimum in the generated designs and areas open to the intervention of the public and the nature are planned (Cansu Çakır, Nihan Yağlıoğlu, Işılgül Çakmak).

This project focuses on the structure planned as tourism information office in Taraklı square whose interior space project has not been completed and which has not become functional. These units considered as awareness points are planned as a point where residents of Taraklı and tourists become aware of each other. The interior space design is supported with digital screens. They are planned as a space where the tourists can get information and the locals can organize meetings. The function of the space is supported with lightings and temporary colorful directions on the floor (Esra Başak, Büşra Top).

The top floor of Hacı Atıf Han is restored for the sale of traditional products. However, the planned designs in the interior space have not been completed. This project aims for bringing traditional products to the front and safeguarding the traditional culture. The equipment used in the interior space for eating, relaxing, productions, sales etc. are continued with sitting units, bicycle parking space and sales functions on the exterior pedestrian axis. Light wooden structure is used to ensure interior-exterior space integrity and little interference is made on the historical fabric (Büşra Tetik, Dilan Çelik, Serenay Dişkaya).

This project focuses on the laundry house located on the river in Taraklı but not currently in use and is given a new function as a library for children. A modular system made of woods is used inside the laundry house and is also used on the other side of the river for exterior use. Thus, alternative uses are recommended for climate conditions. The interior-exterior space integrity is ensured (Hande Nur Açıkkolu, Yaren Feyza Yalçın, Ali Özturan).

4. QUESTIONING OF CREATIVE DIALOGIC ENVIRONMENT

The outcomes of the creative dialogic environment are generated with the student applications explained above. The course structure recommendation for the creative dialogic environment is analyzed and evaluated with the survey given to the students. A survey comprised of 8 structured and non-structured open-ended questions is given to 15 students who have taken, attended and completed the course after their final exam delivery. The students are asked to write down for each dialogic environment three concepts which they think are related to the subject and the other question is given as an open-ended question in order to allow the students to share their comments. The questions are prepared to generate data regarding the purpose of the creative dialogic environment under Table 4.

Table 4. Relation of the Creative Dialogic Environment with Survey Questions

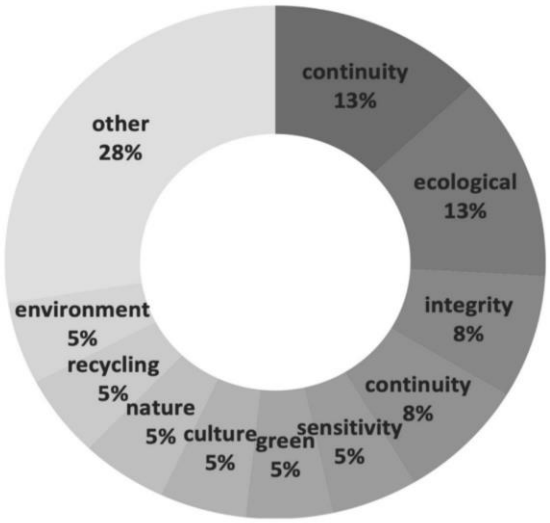
Relations	Questions
Dialogism I	Write down three concepts defining sustainable design.
	Explain sustainable design.
Dialogism II	Write down three concepts defining the "a coffee story" application.
	Explain the "a coffee story" application.
Dialogism III	Write down three concepts defining the "critical thinking application in the context of environmentally sensitive design".
	Explain the "critical thinking application in the context of environmentally sensitive design".
Dialogism IV	Write down three concepts defining the "interior architect in a slow city" application.
	Explain the "interior architect in a slow city" application.

The data collected with the survey are evaluated based on dialogism points and course structure. The first questions are used to evaluate the frequency of the use of the concepts written down by the students. The open-ended questions are used to code and analyze the use of concepts and subjects regarding the dialogic environment designed for the course and establishing relations with it.

Dialogism I

Students have defined sustainable design as sensitivity, green, culture, integrity, continuity, permanence, nature, recycling, continuance, ecologic, respect, flexible design, self-sufficient, requirement, society, functional, related to future, innovative and safeguarding of assets (Table 5). The frequency rates of repeating the concepts are close to each other. The ratio of continuity and ecologic concepts mentioned the most in the surveys is only 13%. The ratio of the frequency of use of integrity and sustainability concepts is 8%. The diversity and frequency of use of the concepts can be considered to ensure multi-directional thinking, being one of the course goals. It is understood from the answers given to the open-ended questions that the students have written down their own comments instead of usual definitions regarding sustainability. It can be said based on the answers that the course has raised awareness in and given a questioning perspective to the students.

Table 5. Questioning of Dialogism I

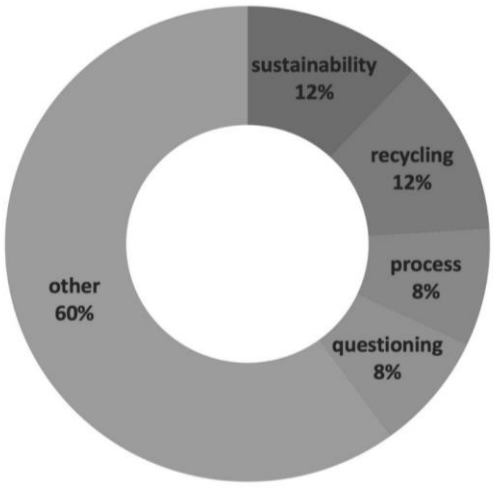


Ensuring functionality and **continuity** in the designed venue affects the project generation process.
I have understood that designing can be made without damaging the **natural texture** and the importance of designing
Ensuring an integrated design process **in touch with the nature**
Multi-perspective thinking, seeing the possibility, importance of experience
Critical evaluation of the design in the context of sustainability and environmental sensitivity and directing our design with these criticisms.
Understanding the project **as integrated to the environment**
Learning more about how the **continuity** of the designed venues will be ensured and what can be done for the future users.
Raising awareness regarding structures **which are in harmony with the nature**
Respecting the **environment and structure**
Looking at design with different perspectives
Critical approach to design in the context of **environmental sensitivity**, learning environmental awareness

Dialogism II

The coffee application is explained with sustainability, recycling, carbon emission, process, raw material, awareness, nature, damage, interaction, impact on the environment, questioning, objectivity, health, preference, individualism, integrity, continuity, user and re-use concepts. Even though the students define the application with different concepts, the frequency of using them is nearly the same as can be seen from Table 6. Sustainability and recycling are the most used concepts with a share of 12%, followed by process and questioning with a share of 8%. As the students think of process and questioning even with a low share, the purpose of the application is achieved but the achievement rate is low. Students have mentioned more the relation of the application with creativity in the open-ended question. One student has stated that he *"started to drink coffee as a different taste"*. This shows that the relation of the application with sustainability and environment is questioned with a creative approach and raised awareness.

Table 6. Questioning of Dialogism II

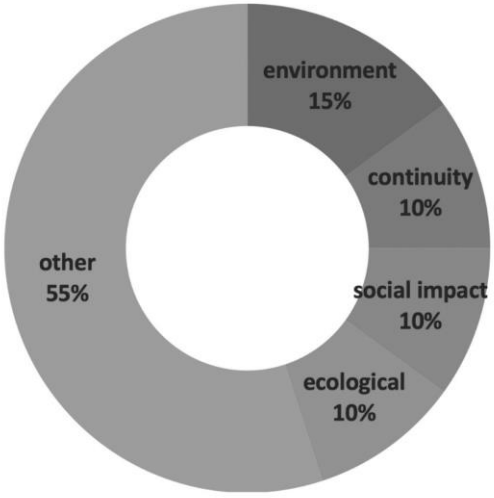


The application article was the most challenging part. However, it has raised awareness in terms of being **thought-provoking and questioning**.
It was a **different and useful** experience to look at it as the designed material. It is enriching in terms of design since it is different than the standard academic approach.
It has provided an experience for **looking from a different perspective** at the objects and things we always use.
Various contexts between porcelain cup-coffee-user are presented. Researches are conducted into two different subjects and with its **synthesis**, the direction of the application is decided.
In addition to considering the sustainability concept in terms of design and architecture, we have understood its importance for the materials we use **daily** and products we consume.
I have started to drink coffee as a different taste.
It is an ordinary application which is actually smart and attracts one to it through **entertainment**
It has ensured us questioning the actions in the context of their impacts on the environment and has raised **awareness**.
I have looked at **stereotyped beliefs** regarding paper cup from a wider perspective and I have learned that it is not innocent.
I have learned that sometimes I should conduct objective researches about a subject and make my preference afterwards and **sometimes I do not have to make a decision. I have learned to use these two options when necessary**.
We have looked at what our preference shapes.
I have learned and questioned many things during the application.

Dialogism III

The critical thinking application in the context of environmentally sensitive design is defined with flexibility, continuity, water consumption, green building, certificate, sustainability, social impact, awareness, ecologic, environment, approach, design philosophy, integrity, conscience and sensitivity (Table 7). Environment and continuity, social impact and ecologic are the most used concepts, with a share of 15% and 10% respectively. Like the dialogism II application, this application is explained with many concepts with similar rates of frequency of use. The answers given to open ended questions show that contribution has been made to criticizing, questioning and explaining the reasons for them by the students regarding their projects. However, it is clear that the question of designing with sustainability in mind has not been answered. The subject is evaluated in terms of environmental technology dimension like in the abovementioned student applications.

Table 7. Questioning of Dialogism III

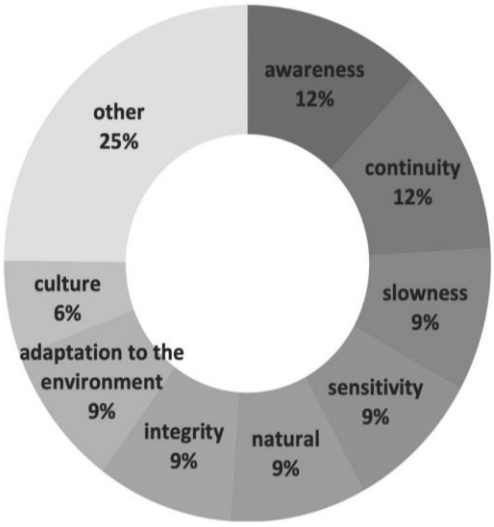


Taking into consideration the environmental impacts of the project, the **process** is affected and understanding its impact on the environment
It has helped me better understand my project
I have seen the advantages and disadvantages of my project in terms of environment I have found solutions to the question how the environmentally sensitive design should be.
I have realized how poor my project in the previous term. Therefore, it has helped with my project during this term.
It has helped us look at the design from a **different** aspect. We have seen that sustainability serves for improving ourselves and is a concept which should not be disregarded in future design processes.
It has helped us apply a **multi-directional** perspective.
Categorizing a design as **sustainable/non-sustainable** and evaluating it and experiencing its subjects under these categories. This experience has ensured us to understand that experience and design are integrated with each other.
I have seen areas of improvement and mistakes in the project with the **critical approach** I have implemented, and I will try not to have the same areas of improvement and make the same mistakes in other projects.
I have evaluated my project in terms of **social sustainability**.
I have seen the areas of improvement in my project and made recommendations. Our future projects should be sustainable.
I have seen which points of my project are not sustainable.

Dialogism IV

The interior architect in a slow city application is defined by the students with the slowness, sensitivity, low population, natural, awareness, continuity, integrity, harmonization with the environment, culture, history, function, togetherness, limit, silence, respect and continuity concepts. Awareness and continuity are the most used concepts with a ratio of 12% while slowness, sensitivity, natural, integrity and harmonization with the environment are the second most used concepts with a ratio of 8%. Many concepts have been used like other dialogism points and no single concept has come to the forefront. In the open ended questions, the students have shared their opinions about the functioning and process of the application instead of talking about the slow city and their projects in this subject.

Table 8. Questioning of Dialogism IV



I have learned what a **slow city** is. I have made a design with a larger scale outside the interior space.
Learning about **Taraklı** where I have never been before and organization of a technical trip there have increased my interest in the slow city and the project. More trips could be organized.
The formation of a workshop at the elective course **was nice** and projects have developed fast.
The teamwork for the project was not efficient. The supporting of the project with juries have adversely affected the development of the project.
The slow city being the project subject **was interesting**. However, the organization of a project at a elective course was a busy and tiring process. I did not have much time left for other courses.
Designing for the slow city which I have learned recently **helped me better understand the subject.**
I could not spend much time at the project area since it was far. I could not observe the slow city much.
It has introduced us with the slow city concept which I did not have any idea before and informed us about the cities tried to be developed accordingly.
I had the chance to carry out a conceptual work, ensure and experience planned development in the slow city project.
We have discovered a new **cultural** place and environment
Examining the slow city from a wider perspective.
We have learned about the slow city and what it includes

5. CONCLUSION AND DISCUSSION

The main goal of the course Sustainable Design in Interior Architecture is to recommend an innovative approach and improve the creativity of the students by going beyond the ordinary structure of the elective courses. To achieve this goal, the course is designed with a process and structure to support creative thinking. This structure is examined based on student applications and a survey and the following conclusions and recommendations are made. Students have explained all dialogic environments with a number of concepts in the answers they have given to the first semi-structured question of the survey. It is clear from the diversity of the concepts that the applications have supported the students to gain new perspectives. Despite many different concepts, continuity, ecologic and integrity are the most frequently used concepts to define the common ground. The multi-directional perspective aimed with the creative dialogic environment is achieved with different applications as understood from pluralism with common features among concepts.

Like the first question of the survey, the students have shared their comments regarding the relation of the application with creativity and the application process in the open-ended question of the survey. This shows that the awareness of the students is raised regarding critical thinking, multi-directional thinking and questioning. However, except for the “a coffee story” application, the sustainable design has a secondary place in the applications. While explaining the “a coffee story” application, both its relation with sustainable design and multi-directional perspective has come to the foreground. Based on the data generated from both questions, it is evaluated that the focus has not been on the sustainable design and it has remained in the background. This shows that the purposeful principle in the dialogic teaching model has remained in the background and the teacher has not ensured full efficiency in the management of communications. According to the outcomes of the applications and the data collected from the survey, the course includes diversity and supports critical thinking. Moreover, the diversity of the applications facilitates addressing each student since each student understands the subject in a different way and has a different approach for problem solving. However, the high number of applications has made it difficult for the students to focus

on the subject. Each creative dialogic environment can be planned in a flexible way to respond to different dialogic relations under a single application instead of different applications. To this end, a creative and flexible dialogic environment can be established under a single application focusing on various questions or problems. Inclusion of flexibility into the process will allow solution of the unexpected and unplanned problems in a creative way. In this context, a detailed research can be carried out on the relation between creativity, dialogism and flexibility in future studies.

In conclusion, a structure and process recommendation based on dialogism concept has been developed at the course of Sustainable Design in Interior Architecture under the light of changes, developments and new approaches in education. The dialogic environment has improved the creativity of the students and ensured them to gain awareness and think in a critical way.

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Historic Background and Architecture of Çanakkale Martyrs Monument

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Abstract: *Çanakkale Martyrs Monument, rising with all its glory today, is a monument built for the great memory of the soldiers who died on the front of Çanakkale. The process from the idea of the monument to the project contest and then the implementation and opening of the project has spread over a very long period of time. The process, which started with the creation of a public opinion, was kept alive with the agenda and follow-up of the press, and construction progressed with the important contributions of the Martyrs Cemeteries Reconstruction Society. The design of Doğan Erginbaş and İsmail Utkular won the competition organized for the monument project. This winning work is considered a product of II. National Architecture Movement and inspired by the German Architecture introduced under the leadership of Paul Bonatz in those years. The Monument was realized with significant financial participation and support of the people, therefore it is a work that has survived as a symbol of social solidarity in war and peace. This article aims to reveal the socio-political and architectural foundations and qualities of the Çanakkale Martyrs Monument.*

Keywords: *Çanakkale Martyrs Monument, Doğan Erginbaş, İsmail Utkular, architecture, monument, Paul Bonatz*

Tarihsel Süreci ve Mimarisiyle Çanakkale Şehitler Abidesi

Özet: *Bugün bütün görkemiyle yükselen Çanakkale Şehitler Abidesi, Çanakkale cephesinde ölen askerlerin yüce anısı için yapılmış bir anıttır. Abidenin fikrinin oluşmasından, proje yarışmasına ve ardından projenin uygulanıp açılışına kadar olan süreci oldukça uzun bir zaman dilimine yayılmıştır. Bir kamuoyu oluşturulması ile başlanan süreç basının gündemi ve takibi ile canlı tutulmuş, kurulan Şehitliği İmar Cemiyeti'nin önemli katkıları ile ilerlemiştir. Abidenin yapılması için açılan yarışmayı Doğan Erginbaş ve İsmail Utkular'ın tasarımı kazanmıştır. Kazanan bu eser, II. Ulusal Mimarlık Akımı içinde değerlendirilir ve o yıllarda Paul Bonatz önderliğinde tanıtılan Alman Mimarisi'nden esintiler taşır. Şehitler Abidesi, halkın önemli maddi katılım ve desteği ile sonuçlandırılabilmiştir bu nedenle savaşta ve barışta toplumsal el birliğinin de bir sembolü olarak günümüze ulamış bir yapıttır. Bu makalenin amacı Çanakkale Şehitler Abidesi'nin sosyo-politik ve mimari temellerini ve niteliklerini ortaya koymaktır.*

Anahtar Kelimeler: *Çanakkale Şehitler Abidesi, Doğan Erginbaş, İsmail Utkular, mimarlık, anıt Paul Bonatz*

1. INTRODUCTION

Çanakkale, one of the fronts of the First World War, has been a unique place where Turkish soldiers, who heroically defended their homeland with superhuman strength at the cost of their lives, left an indelible mark on our national history as well as human history, with this great victory. Commanded by Mustafa Kemal, this front has the ideal of heroism to be passed down from generation to generation. However,

planning and completing the construction of a monument (Martyrs Monument) to glorify the memory of this heroism to be passed on to future generations, extended over a long time and the monument was completed with substantial support of the public. On October 30, 1924, the "Martyrs' Cemeteries Reconstruction Board" was established by the order of Atatürk, and as the commission's work was deemed insufficient, this time the "Martyrs' Cemeteries Reconstruction Society" was established on 9 July 1926 [1] Members of the Society launched an initiative to build a monument on this area. In the 1930s, particularly in the period corresponding to the 10th anniversary of the Republic, the news about the construction of the Martyrs monument in Çanakkale, had widespread media coverage. In this period, the demand and activities of the National Students Union to build a monument in Çanakkale had also coverage in press [2]. Finally, the monument project contest, organized under the title of "Çanakkale Victory and Unknown Soldier Monument", was concluded in 1944. However, the project, construction of which would cost considerable amount of money, turned into a national aid event with the campaigns of Reconstruction Society and Milliyet newspaper, which were closely monitored by the press.

The aim of this study is to analyze the building process of the monument with some reference to the news of that time in the press. In this regard, digital archives of Cumhuriyet and Milliyet newspapers were utilized in the study. The research has been divided into subtitles to cover certain years, the first section discusses the period starting from the formation of public opinion to the project contest. The second section evaluates the place of Martyrs' Monuments in Turkish Architecture and Art, which is another objective of the study. The winning project belonged to Doğan Erginbaş and İsmail Utkular, who were students at the Technical University, and Feridun Kip, the master architect. This project has a style which can be associated with German Architecture that affected Turkish Architecture in those years. The New German Architecture exhibition opened under the leadership of Paul Bonatz is an important focal point in this sense, therefore, both the exhibition and Bonatz's assessment on architecture are included in the article. The monument is also considered within II. National Architecture movement. In this regard, Architecture and Arkitekt magazines and visual media were utilized as a reference to the contest. Cihangir Yüksel's graduate thesis on Çanakkale Martyrs Monument is an important resource for this section. In the next section, changes that occurred during the implementation of the project were evaluated, considering from the aspects of the planning structure and site plan. The following title narrates how the progress of the construction and the support and campaigns provided by the Turkish people, during the period from 1952 until the opening of the monument, took place in the press.

Çanakkale Martyrs Monument, which perhaps took its final shape with the reliefs carved on the pedestal in November 1999 and changes made recently, will maintain its significance for centuries and will be mentioned and considered a symbolic work of the history of the Republic of Turkey. The subordinate objective of this study, as of the previous ones, is to be a reference to other studies.

The main findings below were achieved in this article:

- The Çanakkale Martyrs Monument had been on the agenda of the press throughout the period starting from its very outset up until its opening.
- The Martyrs Cemeteries Reconstruction Society contributed a great deal to the realization of the monument.
- It is observed that social sensitivity backed up by the intense public support arised, during the construction process.
- Çanakkale Martyrs Monument was realized with the implementation of the winning project of a competition. At that time, project competitions for monuments stood as an approach that motivated architects and sculptors.
- Paul Bonatz was an influential name in the introduction and application of German Architecture in Turkey.

In the course of the research, periodicals were scanned, the architectural features of the building were evaluated comparatively, the studies made in this field were assessed, the Monument was analyzed in a holistic approach to its historical, social and architectural qualities, and finally, contribution was made to the literature.

2. BETWEEN 1930 - 1944: THE DEMAND TO CONSTRUCT ÇANAKKALE MARTYRS'MONUMENT AND THE FORMATION OF PUBLIC OPINION

The rise of the news about building a monument for the martyrs of Çanakkale occurred in the summer months of the 1930s. Vakit newspaper reported the meeting of the Martyrs' Cemeteries Reconstruction Society and the decisions taken, first of which was to visit the cemetery on August 14th. (Figure 1). For this purpose, a ferry departing from Galata Port would go to Çanakkale cemetery area where a conference and a religious memorial ceremony would be held. The second decision taken during the meeting was to organize a project contest among Turkish artists for a monument to be built in this region and to award the winner of the contest 500 TL. Article continued that the Academy of Fine Arts is conducting preparatory work on two projects, one of which will cost 500.000 TL and the other 1.000.000 TL [3].

Figure 1. Board of Directors of the Martyrs' Cemeteries Reconstruction Society [3].

Cumhuriyet newspaper, on July 9th 1930, published an article titled "Contest for the Çanakkale Monument" [4]. On August 6th 1930, under the headline "Foundation of Çanakkale Monument will be laid next year" it announced that it had been decided that the monument would be built by Turkish craftsmen and the construction would be tendered within a year [5]. On December 10 1930, the news, headlined "Martyrs Monument; Our Deputies will submit a motion to start the construction", noted that the State Academy of Fine Arts wrote up a report on design, construction and estimated budget of the monument [6].

In the 10th year of the Republic, the agenda about the monument was centered around the actions of the National Students' Association. On September 8th, 1933, National Students' Association's trip to the Çanakkale cemetery was announced and the news said "Bravo to the youth! They will not only visit the martyrs and also erect a monument for them" [7]. The news continued with a critical review titled

"Çanakkale Monument". The news on September 15th, 1933 mentioned that the National Students' Association initiated a campaign to collect money required for the monument, within a year.

On October 2nd, 1933, the article titled "Çanakkale Monument: An Open Letter to the Association" was written as a reply to A. Necdet and Tevfik Cemal. [8] In the letter it was stated that the idea of erecting a monument had come up long before the visit of the National Student Association, and informed about the project designed for the monument by the architect Sırrı Bey:

> *"The idea of Çanakkale monument is not something new. Perhaps it is something our young people have realized recently. Nevertheless, almost seven years ago, Ali Hikmet Pasha, the commander of Balıkesir corps, contemplated this idea and attempted to set up a memorial on the lands of Çanakkale, which had a great role in securing the Turkish sovereignty and bearing the bones of thousands of Turkish young people. For this reason, he had summoned Sırrı Bey, a distinguished architect of our country, and told him that he wanted to consecrate a monument to the glorious victory of the Turks. Sırrı Bey, upon receiving full instructions from Pasha, worked hard on it for many days and prepared the plans for the monument and when Ali Hikmet Pasha saw the plans, he found them quite eligible. In order to accomplish this great work, Pasha got into contact with the Ministry of Defense and made great efforts to get the allocation of 120.000TL, which was the estimated cost of the monument, however, the budget made it possible to get only 40.000 TL at that time. 25.000 of this money was used for ordering part of the marbles for the base of the monument. However, the fact that the remainder of the allocation was not received, required the postponement of the construction of the monument and the base marbles of 25.000 TL worth have been kept in Seddülbahir for seven years now."* [8].

The author, who stated that he received all the information from the architect Sırrı Bey and that he personally saw the project, gives the following information about the design of the monument planned to be built: *"However, I can add that I was enraptured when I pictured this 28-meter victory eagle in my mind based on the plans" [8].*

The design of Architect Sırrı Bey, which is conceivably an elevated eagle figure, was the first concrete step towards making a monument, but it could not be realized. In the rest of the article, there are words supporting the aid campaign of the National Students' Association can enable the construction of a monument with the cooperation of the people:

> *"…The sons of this nation, who did not hesitate to lose their lives in wars, of course, will not hesitate to make contribution to this campaign to honor the memory of the deceased. The Turks are as appreciative as they are altruistic... Come on fellows! Go for it! Let's work this out together and erect a monument out of respect for the memory of 55 thousand Turkish children died…" [8].*

The articles about the exigency of erecting a monument in October gained momentum and the social agenda was created to raise awareness of the public. The image of the news dated October 6 was a photograph showing the images of skeletons and skulls stacked on top of each other, and conveyed the grief of the young people visiting the region and seeing the martyr bones in a miserable condition, with the following statement, "Such disrespect to the bones of the heroic martyrs of Çanakkale", [9] On October 7, the source of the photograph published previous day, was stated to be the "Birlik" newspaper [2]. of the Students' Association, and the gravity of the situation in the region was explained. On October 8, it was reported that the Swedish government was going to build a memorial for Turkish soldiers who died

in their country, and in the following lines, it was pointed out that it had been eighteen years that there is still no monument in Çanakkale [10]. Immediately after the news on October 9, titled "We want respect and a monument dedicated to the martyrs of Çanakkale" [11], another news was published on October 10th titled "The government is preparing to erect a big monument". In this article, it was stated that the government was working very seriously about erecting a monument in Çanakkale [12]. The news on October 14 again supported the necessity and importance of building the monument [13].

The article dated 14 November 1934 stated that it needed time and patience to build a monument having the required perfection and size [14]. The first campaign initiative to provide financial support was reported in the news dated December 23, but it was stated that the lottery was not allowed:

> *"The National Students' Association applied to the governor's office to organize a lottery for monument construction and raise 200 thousand TL with the tickets to be sold in two years." [15].*

Another news on December 2, 1935, stated that the National Students' Association's initiative of two years ago for the construction of the monument did not bring any results, and that there was no progress on the subject until that time. The news ended with the following words:

> *"When will we start this construction and get relieved of the moral burden of dedicating a monument to the people who brought us the biggest honor of the 20th century by sacrificing their lives and, thus are much worthy of it?"* [16].

On April 4, 1936, the news, published based on the information given by the "Martyrs Cemeteries Reconstruction Society", stated that building a monument in Çanakkale was an ideal, however accomplishing it under the economic circumstances was not possible for that day, and maybe, not even for many more years. [17]. The most important news worth mentioning afterwards was dated January 12, 1940. In the content of the news, it was declared that building a great monument in Çanakkale was on the agenda of the meeting of the Martyrs Cemeteries Reconstruction Society, which would be held in Eminönü Community Center [18].

Evaluating the news of the 1930s in general, it can be concluded that the contents related to the construction of the monument were successful in creating public awareness. Both the National Students Association and the Martyrs Cemeteries Reconstruction Society tackled this topic in good deal. In that period, the first draft project of the monument was an eagle figure designed by architect Sırrı Bey. It was decided that Turkish artists had to work in the design of the monument and therefore a report was requested from the Istanbul State Academy of Fine Arts for this purpose. The approximate cost of the monument was calculated and it was concluded that the cost might not be affordable for many years. The initiative of donation campaign and the lottery attempt of the Turkish Students Association were not successful. A project competition on this subject was held in 1944.

3. GENERAL TRENDS IN ARCHITECTURE AND ARTS IN THE '40s AND THE EFFECTS ON ÇANAKKALE MARTYRS MONUMENT

The Çanakkale Martyrs monument competition was launched with the project title "Çanakkale Victory and the Unknown Soldier Monument" and was finalized in March 1944. In order to explain both the winning project and other projects participating in the competition, it is necessary to address the elements that shaped the Turkish architecture and aesthetics of those years. Two general tendencies can be mentioned in the Republican period of Turkish art in the early 1930s: The first is the modernism phase which was seen in painting, sculpture and architecture, and continued until the end of the 1930s. 10th year of the Republic onward, especially in the 1940s, a second trend which is more national in character and is attached to tradition, is visible. The most important reason of a trend of such national character is that the culture and art were developed in a more closed atmosphere during the World War II. Through these years, all artists and designers were welcome to Anatolia which was rich in materials. Again, in the architecture of this period, the tradition was tried to be revived in two ways: The first approach was derived from the oldest Turkish civilizations, and the second approach was to collate Anatolian Seljuk and Ottoman art with modernism. Towards the 1940s, we witnessed the coexistence of the national architectural style theorized by Sedat Hakkı Eldem and the effect of German architecture which started in the 1930s.

Sibel Bozdoğan explains the period which started with Atatürk's death and distinctly observed in the early 1940s:

> "*Although Turkey remained neutral in World War II and did not participate into the war, Turkish art, sculpture and architecture at the beginning of the late 1930s and 1940s testifies the close ties established with Germany and Fascist Italy. Both countries participated in the Izmir International Fairs in the late 1930s with magnificent pavilions (see Chapter 3) and comments praising the efforts of these countries in the field of art and culture were published in many popular publications. The peak of this fascination was the opening of The New German Architecture exhibition in Ankara in 1943, which was led by Paul Bonatz (1877-1956) " [19].*

Figure 2. 1937 International Paris Exhibition, German Pavilion [73]

The "New German Architecture" exhibition led by Paul Bonatz (1877-1956), deeply affected Turkish architects and designers in those years. Bonatz, who then would work in Turkey as an architect and educator, organized this exhibition consisting of projects, models and photographs of architectural works

which were created under the rule of the National Socialist Party in Germany, at the Exhibition House in Ankara. In the exhibition, the works of architects such as Ludwig Troost, Albert Speer, Wilhelm Kreis, Wilhelm Haerte and Paul Bonatz were displayed [20]. In Arkitekt magazine, Abidin Mortaş evaluated the "New German Architecture" exhibition. According to him, the common feature of the designs is the use of massive stones enabling the persistency of the buildings, again these works are simple and monumental works with prominent proportions. The military monuments (Figure 3) designed by Architect Wilhelm Kreis to be built in various countries were evaluated as successful works in terms of appropriateness and in silhouette [20].

Figure 3. Wilhelm Kreiser; Project of the bridge to be built above Elbe, Hamburg [20]

In the opening speech of the "New German Architecture" exhibition in Ankara, Paul Bonatz said, "A new style can only emerge from social consciousness and revolution". According to him, almost every country was in search of a classical architecture inspired by its own past by getting rid of modernism, and the aim of architecture was to be abiding. Bonatz, who criticized modernism in general, mentioned that there were aspects of international styles that could not be adapted to every country. In modernism, structures had become too simplified and applied in the same way everywhere, regardless of differences between countries, nations and climates. For this reason, almost every country was looking for a new style by considering their own national roots. According to him,

> *"grasping one's own culture consciously means building up nationally… This leads to tradition… For us, classical means the will power to reach the absolute and the ultimate. In other words, the individual's fashion and enthusiasm will be avoided. As in the ancient times, the individual will not represent himself, but will be subject to the common and great will of the general public; the art of construction should be treated as the politics are…" [21]*

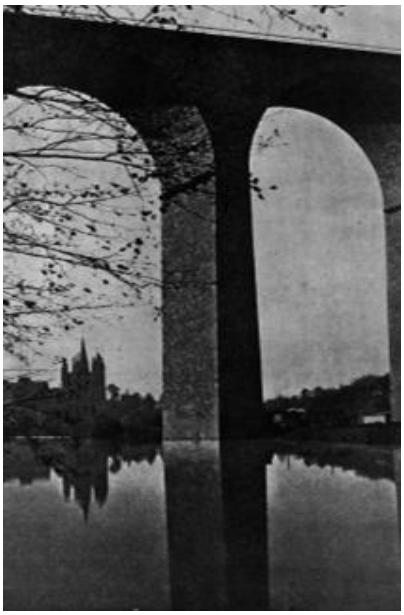


Figure 4. Paul Bonatz; Part of a Road Bridge [20]

The same exhibition was hosted by Istanbul two months later. Architect Paul Bonatz held a conference on "New German Architecture" at the State Academy of Fine Arts on May 6, 1943 [22]. In this conference, he classified the buildings as general buildings, technical buildings and monumental buildings, and evaluated the monumental structures as separate and special. According to him, the best material to use to create a monumental and yet simple and solid structure is cut stone, which is frequently used in German architecture (Figure 4) [22].

German Architecture of 1930s also affected the II. National Architecture period in our country. Metin Sözen and Ahmet Mete Tapan explain the reasons as follows:

> *"The adoption of the understanding of nationalism by prominent faculty members of architectural schools and the desire to create civil architectures having classical Ottoman elements and yet dominated by monumental details show parallel features to the German architecture of the day. The architectural productions in Germany were aimed to reflect the power of the regime and administration and the spirit of nationalism. The use of cut stones, the arrangement of the column rows, the oppressing dimensions in architectural productions are the main elements of German monumental architecture. This kind of stylistic impact on our architecture, which is in a period of vacillation, is natural on the basis of cultural and political relations of the day with Germany. In addition, the coincidence of the political and artistic improvements in our country with the design trends in Germany enabled the implementation of such architectural development in our country. In this period, which we can consider as German eclecticism, the fact that the leading foreign faculty members of our architectural schools are German or Austrian is one of the elements that constitute the stylistic features of the productions of our second national architecture movement. It is a fact that, apart from Bruno Taut, one of the foreign lecturers of this period, all others are far from the real Bauhaus movement." [23].*

4. THE PROJECT COMPETITION FOR ÇANAKKALE MARTYRS MONUMENT, THE WINNER, ARCHITECTS AND THE CRITICISMS

The prerequisite for the "Çanakkale Victory and Unknown Soldier Monument" project competition, similarly to the Anıtkabir project competition, was a design with plain features in accordance with Turkish national architecture tradition [24]. The evaluation of the project competition started with the meeting of the jury on 15 March 1944 at the Army Officers Club and the winners were announced on March 29, 1944. There were 3 winning projects, namely first, second and third runner ups and 3 projects getting honorable mentions [25]. The owner of the winner project was announced as Master Architect Feridun Kip. Doğan Erginbaş and İsmail Utkular, who were the actual designers of the project, could participate in the competition in the name of Master Architect Feridun Kip, because they were senior students in Istanbul Technical University at that time [24].

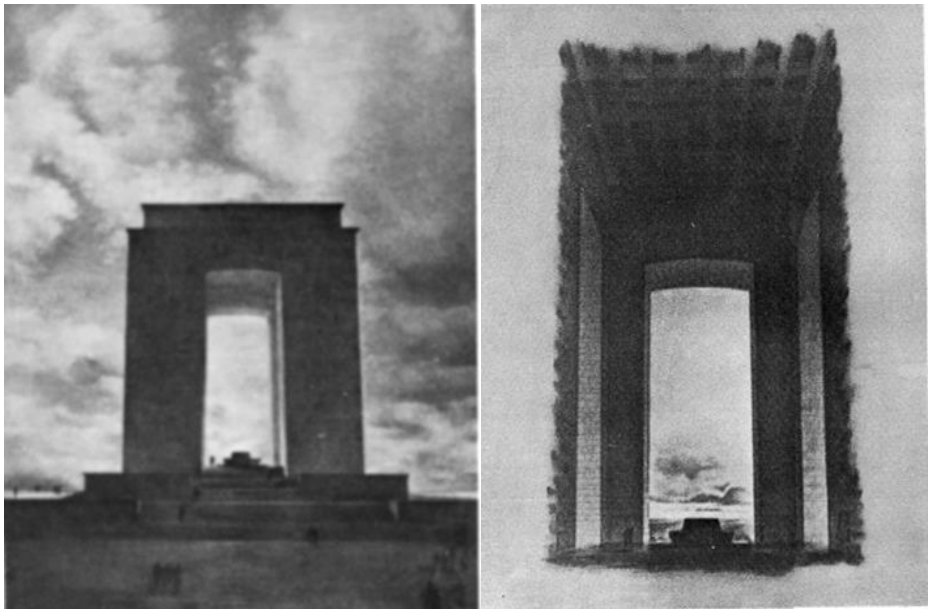


Figure 5, 6. The winner of Çanakkale Victory and Unknown Soldier Monument Competition [25]

The Changes in the location and implementation of Çanakkale Monument

Doğan Erginbaş stated that the project they participated within the competition was designed to be constructed in Alçıtepe. However, during the implementation stage, the location was changed to be Hisarlık because Alçıtepe is far from the sea and thus prevents the viewing of the monument from afar and from the sea [24]. Necmi Onur declared the reason of that decision change was the fact that soil in Alçıtepe was clayey [26]. According to Erginbaş, the monument was designed entirely from cut stone (Figure 7), but during the construction, the material was changed with modern architectural materials, concrete and iron, and the monument was later coated with granite and stones [24].

Plan and Design Features

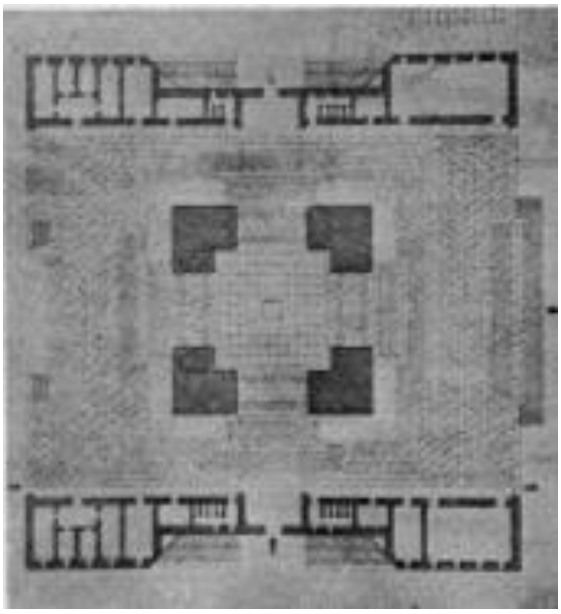


Figure 7. The Plan of the winner project of Çanakkale Victory and Unknown Soldier Monument Competition [25]

The main body of the monument was in the form of four square columns 10 meters apart, as in the plan, and these columns were topped by a 5m thick concrete slab. The main body with a hall of honor of 45x45m in the middle part was surrounded by a plateau measuring 30x30m. At the base of these four columns, a total of eight panels of 3x5 square meters, two facades on each foot, were reserved for relief carvings depicting Çanakkale War [27]. The projected tomb of porphyry marble to be located in the middle of the monument's hall of honor could not be built. The tombstone on which verses from Mehmet Akif's poem were inscribed was temporarily located on the seaside for the opening ceremony. On 17 November 1958, a competition was held for the mosaic designs planned to be made on the ceiling of the hall of honor, but this could not be realized either. A museum of war memorabilia was planned to structure in a way to spread completely underneath the monument's hall of honor to exhibit the remains of Çanakkale wars and it was only built in 1971 [24]. The four columns that make up the body are stone covered on reinforced concrete. The monument rises sloping upwards and therefore its width of 25 meters on the ground decreases to 23.10 meters on the top [28]. In 1958, an article about Çanakkale Monument stated that the capital of the monument was changed by the architects:

> *"... The architects desiring to comply with today's architectural understanding shifted the capital part of the monument into a simpler form without making major change in the basic lines of the project."* [29]. *After the capital part was completed, layers of bitumen was applied onto the capital of the monument to ensure durability."* [1].

The site plan of the monument was described as follows:

> *"The lower base of the monument is 1m above the ground in the east and 4m above the ground in the west facing the sea. The entire area of the monument has a length of 170m in the east-west direction. Its width is 64m in the east and 45m in the west. The ceremony area is not designed. Although a pool to be located on the southwest of the base is not*

built, the other parts are implemented according to the plan. In order to drain the rain water, gutters are placed on the parts facing the sea. The land of the monument is afforested, middle part is covered with grass and flowers. The monument is illuminated at night time. " *(Figure 8) [24].*

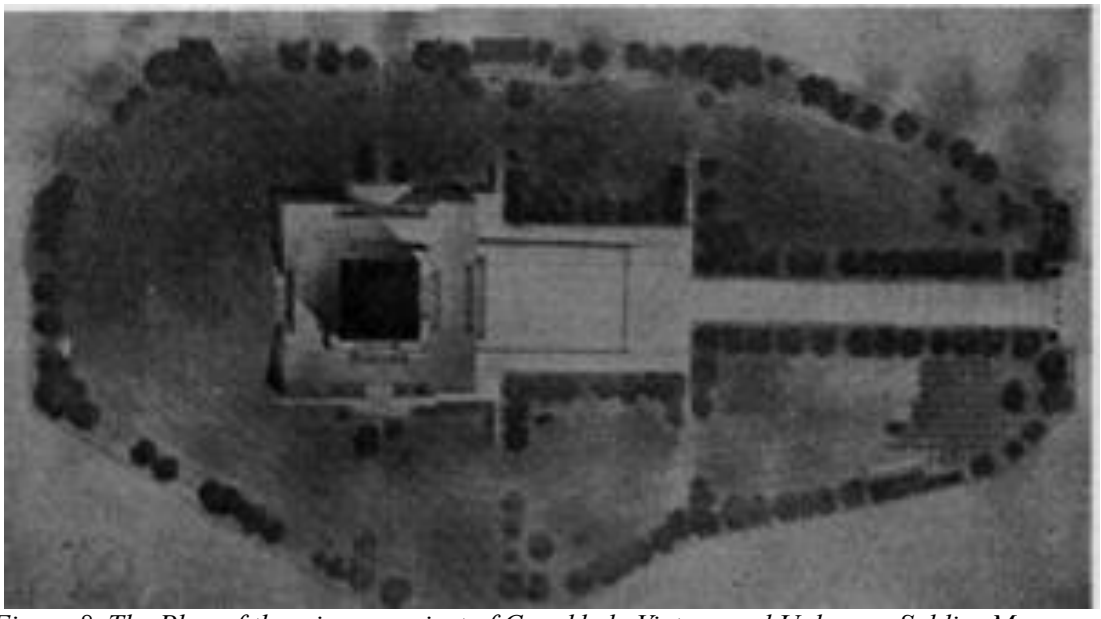


Figure 8. The Plan of the winner project of Çanakkale Victory and Unknown Soldier Monument Competition [25]

Sources of Inspiration in the Design of the Monument

The area where the project was designed for is a rural area by the sea, located in an extremely beautiful nature so the project was designed as an open form that will be surrounded by the nature. The monument also makes references to Turkish architectural traditions. Erginbaş expresses the prominent aspects in the design of Çanakkale Monument as follows:

"I and my friend İsmail Utkular created the form of the monument utilizing both the old architectural forms and our personal preferences. The monument rises on four columns. It is covered with a concrete void. This form also exists in prehistoric dolmens. Such forms are also found in nature, they came into being as a result of natural events. Though not exactly the same but in old Turkish tomb monuments also have this open and barred structure. We designed the capital part of the monument as an arch, this shape is not new and is seen very often. We decided to make it as flat concrete. Since it was going to be a structure on the rural side in the midst of all the images of nature, the sea, the sun and the stars, an open form was needed. A covered structure with doors was unimaginable. Even before this monument was built, that place was already a heroic monumental area. What we created is a symbol of people fighting against imperialism and defending their homeland, of the nameless Turkish soldiers." (Figures 9, 10) [24].

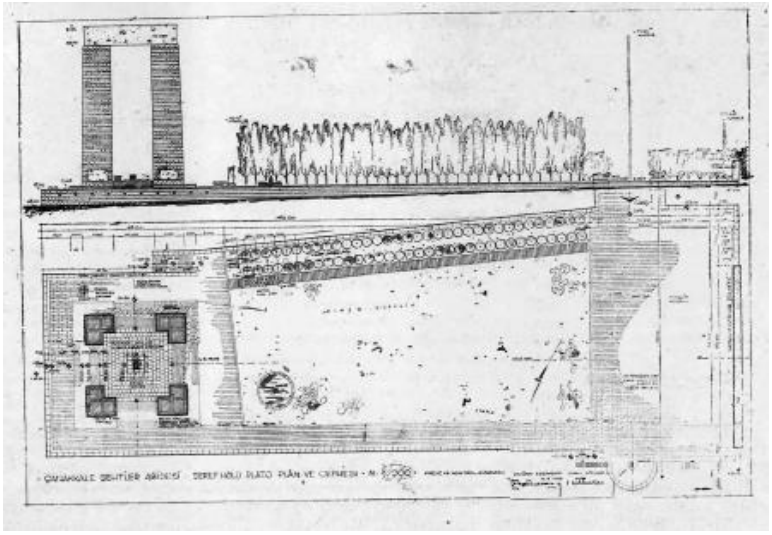


Figure 9. Plan of the Hall of Hon our and Front Facade of Çanakkale Martyrs Monument [76]

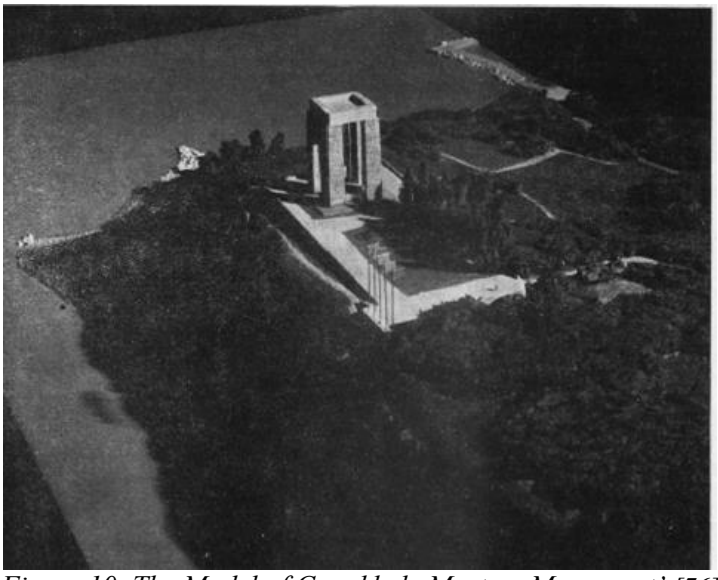


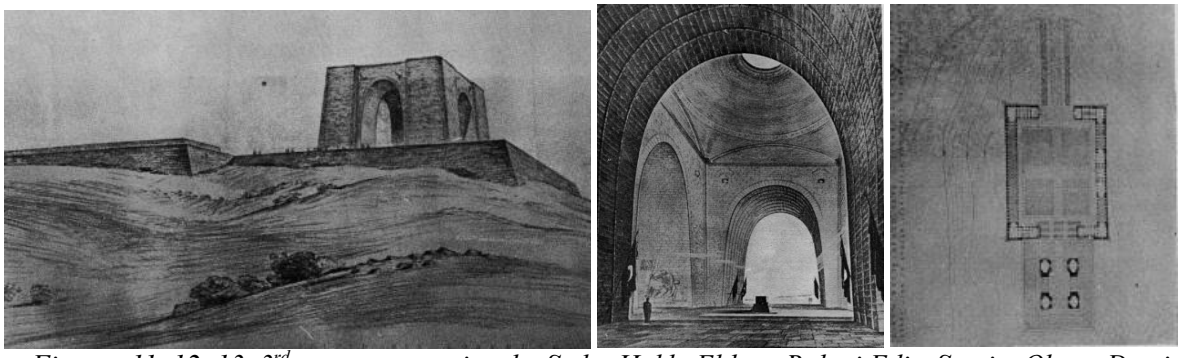
Figure 10. The Model of Çanakkale Martyrs Monument' [76]

Criticisms on the Monument and the News Until 1950

After the conclusion of the contest, both positive and negative criticisms related to the selected work were published in the press; one article dated April 22, 1944, criticized the selected work for not bearing any features from Turkish architecture.

Paul Bonatz makes the most striking criticism about the monument in his article published in Architecture magazine. According to him, the most important problem was that the specifications of the Anıtkabir and Çanakkale Monument competitions had similar provisions. In fact, these two competitions differed in subject, content and purpose. In particular, they were different in terms of function and outhouses. The halls, wardrobes, museum, library and other units for practical needs were necessary for the Anıtkabir

project, however, these are not needed at all for Çanakkale Monument. For this reason, according to Bonatz, the participants of the competition had to comply with the program of the Ministry of Defense, and as they considered and implemented the additional units, they reduced the effect of the original monument [30] (Figures 11, 12, 13).



Figures 11, 12, 13. 3rd runner up project by Sedat Hakkı Eldem, Rahmi Ediz, Samim Oktay, Demirtaş Kamçıl in Çanakkale Martyrs Monument Competition [75]

Bonatz noted that this winning work of the competition, which was open only to Turkish architects, was accepted as complete without any modification, unlike the one in Anıtkabir. The monument is an open one and a kind of work that integrates with its surroundings. "… The artist who made the monument of victory placed the sarcophagus of the "Unknown Soldier", that is, Mehmetçik, on a high hall with four sides open. Mehmetçik is not only lying there, but also keeps observing the lands he has spared with heroism from all sides ..." [30]. Bonatz also defined the monument as a timeless work of art that has reached eternity:

> *"There are such works of art that they reach eternity by going beyond time. The project that won the first prize is a piece of work that has reached this level.*" [30].

While describing the Çanakkale monument as a "new" work that is not under any influence, he used the following words:

> *"This project is neither Egyptian, nor Greek, nor a western work. It is an expression of today with all its ambition. This shape has not yet been built. It is brand new. "[30].*

İsmail Habib Sevük, in his article, stated that the location of the monument was very well chosen:

> *"... The place is really well chosen. It is a location which can be viewed from the Dardanelles, the offshore, opposite shore and the land area of the peninsula, that is, from all sides..." [31].*

Sevuk described the monument as a structure where full and void parts are well balanced and claimed that the work had features recalling the Rumeli fortress:

> *"... The first half of the 16-meter space above the gates was filled with a lay-on ceiling, and a capital section shorter than that was added to the top of the ceiling. Obviously, the craftsmen who created the monument discovered it in the Rumeli fortress. Four triumphal columns, while separate from each other by eleven meters wide gates, are also connected by the capital above the gates. This is, unraveling the mystery of uniting integrity with separation. The harmony when the full meets the void..." [31].*

Metin Sözen and Ahmet Mete Tapan state that the projects participating in the competitions held in the same period are guided by the general attitude of the jury members:

> "*After the Anıtkabir, in competitions such as Çanakkale Monument (1944), Adana Municipality Palace, Istanbul Radio house, the attitude of the jury members and the results of the competition are the evidences of the monumentality, subjectivity and eclecticism in this period. Holzmeister, who led an international architectural movement in our country between 1927 and 1933, also involved in the developments in this period to a certain extent and had a strong influence especially in the field of monumental architecture. Anıtkabir Competition (1942), Istanbul University Faculty of Arts and Sciences (1943), Çanakkale Monument (1944), Istanbul Radio House (1945), Taşlık Casino (1950), and similar practices in various parts of the country are architectural actions aimed at reviving the nationalism understanding of this period." [32].*

In an article on October 5, 1948, it was stated that a monument worthy of the martyrs could not be built yet [33].

After the project was completed, the implementation did not start immediately and the issue started to be on the agenda of the press again. On February 19, 1949, the news reported that Çanakkale Martyrs cemetery was in a deplorable state due to negligence and lack of a watchman and that the pig herds dug holes around the monument's area [34]. In the content of two articles dated 1950, it is noticed that the debate on not building a monument in Çanakkale continued [35]. The reason of not implementing the chosen project was explained by the lack of financial resources [36].

5. 1952-1960 THE PERIOD FROM THE START OF MONUMENT CONSTRUCTION, AID AND DONATIONS TO THE OPENING MONUMENT

The most important development after 1952 was the establishment of the "Monument Building Committee". The full name of the committee, serving under the Martyrs Cemeteries Reconstruction Society, is "Martyrs Cemeteries Reconstruction Society Construction Aid Committee". İsmail Habib Sevük explaining the activities of the Committee, states that the monument can only be realized with the participation of every citizen, as it was the case in the front:

> *"... The committee immediately made a move that will spread to the whole country. As a matter of fact, monument committees have been active everywhere starting from the big cities. Just as the blood of martyrs from all over the country, from the highest officer to the most qualified soldier got together in the lands of Çanakkale; the great monument to be erected there should also have a share of aid of everyone from the richest to the poorest of the country. Here it is on the newspapers too. On August 30, the Monument committee will airdrop advertisement fliers from the skies of the homeland like a rain of patriotism. At the same time, since the committee will exhibit the large scale projects and plans of the Çanakkale monument at the İzmir fair, everyone will see with their own eyes what a magnificent and beautiful work of art this monument will be." [37].*

After the Monument Construction Committee was established, in order to start project and to provide necessary financial support for the progress of construction, donations were collected with the participation of people from the public, military and private institutions; and charitable sports events were organized. As a result, the budget of the monument was supplied substantially. In this period, the news about the monument in the press generally included all these activities.

Firstly, the work, which was planned to be 41 meters high, was introduced through photographs [38]. Five people from the Monument Construction Committee had a meeting with Celal Bayar, the President of the day, and he himself assured that all kinds of assistance on this issue would be provided [39]. The article dated September 16, 1952 was about bringing the architect of the monument to Çanakkale by the Monument committee and the news continued with the decision taken to call banks and the bar association for help and, the announcement of the list of people and institutions donated for the project [40]. In the articles dated 19 and 20 September 1952, "donation lists" were published [41]. Donations were nationwide and the news dated September 28, 1952 included the supports from other cities [42].

It is also observed that the construction of the monument became more concrete with the establishment of the committee. In the same years, the budget of the monument was also discussed in the press. On October 16, 1952, the Çanakkale Governor's Office and the Construction Aid Committee of Çanakkale got together and announced the estimated budget of the monument construction as approximately one and a half million Turkish lira. The article also mentions the large donation of four hundred thousand lira by the Istanbul Chamber of Commerce [43].

On November 10, 1952, Atatürk's view about building a monument in Çanakkale was reminded

"... Yes, we must build big, very big monuments to commemorate our soldiers, but this is a matter of time and availability. However, let me tell you that Mehmetçik himself already constructed the biggest monument by providing that those lands are within Turkish borders" [44].

While the news about donations continued on 19-23 November, the news on December 9 1952 stated that the groundbreaking ceremony of the monument would be held on March 18th. [45]. The ceremony took place on April 17 1954, with the participation of military and political dignitaries [1]. On March 3, 1954 it was reported that, to contribute to the construction, Çanakkale Cup football matches were organized among high school and university football teams by a joint organization of the Monument Committee, student unions and the Representative Office of the Ministry of Defense [46].

Progress of the Monument Construction

The estimated budget for the monument construction was later revised as two million Turkish lira. However, the progress of construction was heavily dependent on donations. For this reason, the importance of donating was frequently brought up by media during the construction phase of the monument. The aids collected enabled the construction to rise, and the height reached was also followed by the media. Meanwhile, for various reasons, now and then, the construction stopped and started to progress again, and all was reported in the press until the opening of the monument.

In the news dated November 5, 1954, it was mentioned that the donations collected for the construction up to date were one thousand two hundred lira [47]. On September 4, 1956 it was reported that the monument was still incomplete [48]. The same year, a few days after the publication of a column titled "Çanakkale Monument must be completed" [49], the estimated completion date of the monument was reported as May 1st 1958 [50].

In the news dated April 8, 1957 it was criticized that the monument was not completed [51]. According to the news on July 28, 1957, the pedestal and nine meters of the columns of the monument were completed [52]. On July 30, 1957, Necmi Onur drew attention to the defects in the construction of the monument and underlined that the construction, after a two-year pause, will start again. Onur also noted how Emin Nihat Sözeri, the head of the monument committee and a retired colonel and pilot, made great contributions to

the monument by preventing the defective construction of the project, going after the stolen steel and materials and having them taken back, and also opening a second tender for the continuation of the construction. Onur's article also includes details about the budget required for the completion of the monument [53]. In the news on July 31, 1957, there is a photograph showing the monument's towering [54].

Meanwhile, aid and donation organizations for the monument continued. One of such organizations was the "Monument Cup" organized between Beşiktaş, Fenerbahçe and Galatasaray football clubs. At the end of the event, Beşiktaş football club donated all the revenue of the trophy to the monument committee [55].

According to Necmi Onur's meeting with the head of the monument building committee, the total budget of the construction was 216 thousand Turkish lira and 900 thousand lira was needed for completion. The cost of the monument had increased even more with landscaping and afforestation. For this reason, a commemorative stamp would be issued and each citizen would be able to support the monument by contributing 2.5 cents [56].

Following the news dated January 15, 1958, stating that the contractor suspended the construction for two months due to financial insufficiency, an aid campaign was initiated by Milliyet Newspaper on January 18, 1958 to ensure the continuation of the construction [1]. In February 1958, Necmi Onur wrote an article in Milliyet newspaper to attract the attention of the public to the British cemeteries and monuments in Chunuk Bair (Conkbayırı) [57]. In his next article, he reproved that the victorious Turkish nation has not yet been able to realize a memorial project while the defeated nations stood out with the monuments and tombs in the same region [58]. Necmi Onur and İlhan Demirel paid a visited to see the Turkish memorials in the region and criticized that Sergeant Mehmet's memorial had been neglected and Nuri Yamut's memorial had been built badly.

Following these two articles, the same people reported news on the Çanakkale monument on February 12, 1958, with photographs on which the scaffold of the monument was seen from Morto Bay. The monument needed financial support to continue:

> *"On the hill, the monument is half left alone and uncompleted. Surrounding land is covered with grass despite the cold weather. The woods on the scaffold are faded and some of them are rotten. The iron was in rust. Presently, the monument is 15 meters high above the pedestal. The height of the scaffold is 25 meters. People in charge told us that the construction of the monument could rise 5 meters per month in normal conditions. According to this math, the construction can only be completed five months after the start. Only if, 900 thousand Turkish lira is provided…" [59].*

The article also included the history of the construction of the monument. It was stated that the first concrete step related to the construction of the monument was taken through a newspaper article in 1944 and later the project could not be implemented because of financial issues. Thereupon, in June 1952, Cemal Yıldırım, the head of the representation office, contacted the head of the monument construction committee and held a meeting in Istanbul with the participation of 46 scientists and company owners, and after this meeting they set up a construction committee and a sub-committee. At the same meeting, it was decided to build the monument in Alçıtepe first but because the soil of this area was clayey, it was then changed into Hisarlık Tepe. Groundbreaking of the Monument took place on April 19, 1954, it was handed over to the contractor on April 26, 1954. Since the contractor in charge did not fulfill his job properly, the construction was taken from this contractor on February 8, 1955, and a lawsuit was filed against him and his bank accounts were seized. The construction, then, was tendered to Ertuğrul Barla on September 10,

1956. Because an amount of 900 thousand lira was added to the construction's existing budget of 500 thousand lira, an aid campaign was launched in Milliyet Newspaper. It was also reported that the monument, planned to be resumed on March 15, 1958, would have an altitude of approximately 90 meters from the sea and itself was going to be 41 meters high. Some of the stone materials of the construction were supplied from villages 80 km away from Çanakkale. In the rest of his article, speaking about the good preservation of the English and French monuments and cemeteries, the author stated that this construction, which had not been completed for 43 years, was a duty of loyalty, and if supported with small contributions, the memory of 251 thousand martyrs would be honored and the Turkish nation's loyalty to them would go down in history [59].

In the news on March 6, 1958, it was stated that the aid collected with the contributions of various organizations, institutions and individuals reached one million Turkish lira, and the construction continued with these aids [60]. On March 15, 1958, it was illustrated with photographs that the monument rose to 25 meters. It was stated that an elevator was placed on all four sides of the monument and additional iron supply was expected [61]. It was reported that the monument was twenty-seven meters on May 22, 1958, and the 10 m section that had been damaged on March 18 was repaired. [62] On August 4, 1958, the monument reached 30 meters 40 centimeters high. It was reported that when the monument reached 36.5 meters, four columns would be topped with a capital. This news and some previous news mentioned about the physical difficulties caused by the location of the monument. At times the construction was interrupted by adverse weather conditions like excessive wind and sometimes the motorboats were not able to dock the Morto Bay to unload the necessary materials [63]. The height was reported to reach thirty five meters on September 27, 1958 [64]. On November 11, 1958, the columns of the monument reached its highest point of 36.5 meters, and the placement of the horizontal capital of 5 meters started. It was reported that the black marble to be laid on the hall of honor's ground was brought from Mersin [65].

The News About the Opening of the Monument;

After a long construction period, the news about the opening of the monument started to appear in the press. On October 10, 1959, Master Engineer Erdogan Tolga, who was the supervising engineer of the construction, stated that Monument's capital part was completed [28]. Necmi Onur's article dated November 11, 1959, that included details about the construction of the monument, also noted that the monument which is unique in Europe would be completed and opened in 1960:

> *"The main body of the "Martyrs Monument", the construction of which started in 1952, has now been completed. In the coming weeks, the scaffold will be dismantled, the concrete parts will be coated with granite and the excess parts of the granite stones will be rasped. Meanwhile, many other workers will make the entrance way of the Monument. The sarcophagus, to be placed in the middle part called the Hall of Honor, was carved by art school teachers and students, and the immortal poem of the great poet Mehmet Akif was engraved on it.*

'O! the soldier, who fell a martyr for the sake of this land, ...

This sarcophagus stone will be placed in the middle and when the entrance way is completed, the monument will open with a ceremony in the middle of 1960" [66].

In the news dated February 15, 1960, it was noted that the opening was planned for August 21, 1960, the day corresponding to the Anafartalar Victory. The monument would open without landscaping and illumination [67]. In the news dated 15 August 1960, it was stated that the opening ceremony of the monument would take place on 21 August. In the news on August 18, however, it was stated that the supervising architects had mentioned that the monument had deficiencies and they wanted to postpone the opening [68]. Ulunay's article titled "Mehmetçik Monument" still claimed that the Martyrs Monument would be opened on Sunday, August 21, 1960. In addition, it was noted that the committee would have fulfilled its duty as of the opening date and that the monument would be remained unattended afterwards. The requirements for the full-functioning of the monument were listed: "This place has no manager, no clerk, no watchman, no gardener and no a guide to inform visitors. " [69].

The monument was opened to visitors by the Chief of General Staff, Army Commander Cevdet Sunay with the participation of thousands of people at the ceremony held on 21 August 1960, the 45th anniversary of Anafartalar Victory [1].

6. THE NEWS AFTER THE OPENING OF THE MONUMENT

In 1963, some issues regarding the Monument were on the agenda of the press. In 1966, the news about the completion of the repair and construction of the Monument continued. The news confirmed that the Monument was opened before it was fully completed. The news dated January 14, 1966 stated that the monument would be covered with a not much visible roof to protect the foundation from the effects of rain and snowfall [70].

7. CONCLUSION

The topic of building some kind of memorial or a monument to honor Çanakkale Martyrs was constantly on the agenda of the press in 1930's with the intention to create public opinion. At the beginning, the formation of such an agenda was realized with the efforts of the Martyrs Cemeteries Reconstruction Society and the National Students Association and the support by the press. The press, at times, played a leading role in public opinion, contributing to the completion of the monument.

Reviewing the development of an idea about constructing a monument as a duty of loyalty to the martyrs of Çanakkale, Martyrs Cemeteries Reconstruction Society's demand of reporting the first designs of the monument from the State Academy of Fine Arts in 1930 (corresponding to the time under Namık İsmail's directorship) can be considered the first step taken. As we can follow on media, the second step in terms of design is Architect Sırrı Bey's monument form with an eagle figure. After the Anıtkabir Competition, "Çanakkale Victory and Unknown Soldier Monument Competition", which was only free for Turkish architects and artists, was finalized on March 29, 1944. The winning architects of the project were Doğan Erginbaş and İsmail Utkular and because they were still students, the name of Master Architect Feridun Kip was symbolically presented as the project owner in the competition.

The construction of the Monument extended over a long period of time. After the completion of the competition, the implementation of the winning project started with the establishment of the Monument Construction Committee in 1952. With the intense activities of the Committee and the support of the press and Turkish people, it was finally opened on 21 August 1960. The building process of the Çanakkale

Martyrs Monument has been difficult, its construction, which stopped frequently due to financial difficulties, was supported by the persistent agenda of the press. Ultimate to the support campaigns of Milliyet newspaper, donations, competitions, tournaments, sales of memorial stamps, and the contributions of all segments of the Turkish society, finally the Monument went down in history as a symbol of social solidarity.

It is concluded that the monument is related to German Architecture. Paul Bonatz and the "New German Architecture" exhibition opened under his leadership were the factors that affected Turkish architects considerably in this period, and his statements that every country should make the monumental designs based on its own tradition standing up against the modernism reinforced this tendency too. Both the Anıtkabir and the Çanakkale Martyrs Monument significantly bear the influence of the New German Architecture dominating those years. The German architecture of that period expresses itself in the form of the use of massive stones in monument design, emphasis on massiveness and monumentality, simplification, turning towards the tradition or the classical (such as the use of columns and pedestals). This monument rising up to the sky in the middle of nature, has openings in four directions and these gaps have a well balance with the massiveness that complements it. The monument, with its simplicity, being an open work, empty and full balances, is not that completely turned his back on modernism.

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Disaster Risk Management of Cultural Heritage in Urban Areas: The Case of Turkey


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Abstract: *Within the scope of this paper, a new initial-scale data infrastructure to communicate with 'Disaster Risk Management' and 'Disaster Risk Management of Cultural Heritage in Urban Areas' is aimed to construct the particular major issues based on selected literature resources (such as the basic terminologies, the main principles, the general development process both in worldwide and Turkey and also the general scaled recommendations, etc.). Thus, this initial theoretical information background prepared for this paper will provide construction of the framework for both the 'Comprehensive Theoretical Data Infrastructure Perspectives' and the 'Pilot Proposal Field Application Study will be selected in The Historical Peninsula' as a basis for a 'Ph.D. Study'.*

Keywords: *Disaster risk management, terminology, cultural heritage, historical environments, cultural heritage properties, Turkey.*

Kentsel Alanlarda Kültürel Mirasın Afet Risk Yönetimi: Türkiye Yönetimi

Özet: *Bu makale kapsamında; seçilen literatür kaynakları temel alınarak; belirli teorik ölçekli yaklaşımlar aracılığıyla (terminolojiler, ilkeler, genel olarak dünyadaki ve Türkiye'deki gelişim süreçleri ve genel ölçekli öneriler vb.), 'Afet Risk Yönetimi' ile 'Kentsel Alanlarda Kültürel Miras'ın Afet Risk Yönetimi arasında, temel ölçekli yeni bir veri altyapı bağlantısının kurulması hedeflenmektedir. Böylece, bu makale için hazırlanan bu ön teorik bilgi içeriği; bu makale yazarının 'Doktora Tezi' kapsamındaki, 'Kapsamlı Teorik Altyapısal Bilgi Perspektifleri'nin ve 'Tarihi Yarımada'da Seçilecek Pilot Öneri Alan Uygulama Çalışması'nın ana çatkılarının oluşturulmasına katkı sağlayacaktır.*

Anahtar Kelimeler: *Afet risk yönetimi, terminoloji, kültürel miras, tarihi çevreler, kültürel miras arlıkları, Türkiye.*

1. INTRODUCTION

The main purpose of this study is to evaluate the phenomenon of 'Disaster Risk Management' in general and also to investigate the current relationship with the phenomenon of 'Disaster Risk Management in Cultural Heritage in Urban Areas', which are the major subjects of this paper. Within this regard, this paper aims to bring together the current documents related to literature review sources, after searching among various approaches of relevant experts to construct 'a general scaled infrastructure data source in order to access an integrative guideline system for new inferences'.

2. RESEARCH METHODOLOGY

This paper is based on a research about disaster risk management of cultural heritage in urban areas to be applied on a case study. The method has chosen is a descriptive study and field application.

3. TERMINOLOGY AND PHENOMENA IN THE FIELD OF DISASTER RISK MANAGEMENT

The main aim of this section is to explain the basic concepts of disaster risk management and also to provide the general information database for the readers about these terminologies and phenomena, which constitute the main basis of this paper, before moving on to the main issues being presented within the scope of this paper.

- Hazard (Danger): is defined as a hazardous event or substance or human activity which may cause loss of life, injury or other health problems, loss or damage to property, loss of the environment or services necessary for life, social, economic or environmental damage. This situation can be called as a pre-disaster situation. It involves disaster risk, especially where the human community positions itself in a way which increases vulnerability [1, 2, 3].

- Vulnerability: In terms of vulnerability of any danger, proximity to a high area, the society in this region and the material and moral values of a society (residential areas, production and agricultural areas, natural and historical cultural heritage, technological, social facilities, educational facilities, etc.), poses the concept of 'risk'. An 'event' which occurs in an area with high risk is also likely to turn into a 'disaster'. This possibility increases in direct proportion to the vulnerability of a society [1, 2].

- Risk: is defined as the combination of the likelihood of an event happening and its adverse effects. On the other hand, 'disaster risk', is defined as potential disaster losses such as life, property, service and social life which may occur at a certain time in a certain community or society. Disaster risk reflects the outcome of the constantly present risk situation [2, 3].

- Disaster: is defined as a function of the risk process. This state arise from the combination of hazards, vulnerability and the inability to take measures to mitigate the negative effects of risk. The disasters may have negative effects such as loss of life, injury and illness on the physical and mental social conditions of human beings, as well as damage to property, destruction of assets, interruption or cessation of services, destruction of the natural environment as a result of social and economic turmoil. Furthermore, main disasters which cause damage and also loss within multiple areas, settlements, villages, districts or provinces and affect the physical, economic and social structure within these areas are called as 'regional disasters' [2, 3, 4].

When it comes to the factors affecting the magnitude of disaster can be listed as; the physical size of incident, the distance to residential areas, the economic situation of region or state where being occurred, the strength of legal and administrative system, whether the urbanization is controlled or not (licensed housing, distance from industrial areas, whether the environment is utilized correctly), whether the administrative level is informed in advance about the disaster and also its capacity to take precautions [2].

- Disaster Risk is defined as the potential disaster losses such as life, livestock, service and social life which may occur in a certain community or society at a certain time. 'Physical vulnerability', on the other hand, refers to the measurable damages and losses which the danger can cause in humans, the environment and the economy. Vulnerability is defined as the characteristics of a

community, system or entity which make it vulnerable to the damaging effects of a hazard and the concerning conditions which cause it. There are several situations of vulnerability arising from the various physical, economic and environmental factors. The main examples related to this context are such as the building design errors, the construction errors, the failure to inform the public, the lack of awareness, the lack of official recognition of risks and the preparation for them, the lack of rational management [2, 3].

- Assessment of Risk is defined as a method of analyzing the nature of the risk or potential hazards of the spreading area, evaluating and determining the current vulnerability situation. Hazard and vulnerability together have the potential to damage the exposed persons and the goods, services, living space and the environment on which they depend. The risk assessment consists of reviewing technical features such as location, intensity, frequency and probability of the hazard, analysis of exposure and vulnerability levels, evaluation of the effectiveness of dominant and alternative coping capacity due to the possible risk scenarios [2, 3].

- Disaster Risk Reduction is defined as the systematic analysis and management of the factors which can cause disasters and the providing reduction of disaster risk factors. Within the scope of the United Nations Hyogo Framework adopted in 2005, a comprehensive approach was put forward to reduce the disaster risks. What expected from this framework is to significantly reduce the loss of life and the property caused by the disaster, at the same time the social, economic and environmental losses experienced in the communities or countries. Within the scope of the International Disaster Reduction Strategy (ISDR) System, a tool was provided to ensure the coordination between the governments, organizations and non-governmental actors to assist in the implementation of this framework [2, 3].

- Disaster Risk Reduction Plan is defined as a document prepared by the authorities, a sector or an organization which sets goals and sets goals to reduce disaster risk. These concerning plans are required to be prepared under the guidance of the Hyogo Framework, taking into account the relevant development plans, the resources allocated and the activities about this program. The national level plans are needed to be clear about the hierarchy of administrative responsibilities and are required to be in harmony with the diverse social and geographical situations. The timeframe, responsibilities and funding sources required for its implementation are needed to be fully specified within the scope of these plans [2, 3].

- Integrated Disaster Risk Management is defined as the management process which takes into account all dangers to create a society which can cope with disasters and which can carry out the studies and measures to be taken in the mitigation, preparedness, response and recovery phases of the disaster risk management by benefiting from the whole power and resources of a society [2, 4].

- Crisis Management is defined as the process starting after the disaster begins, continues in the most severe period of the disaster and ends after the impact of the disaster decreases. In this context, crisis management can be defined as all the work to be realized before and during disasters to get out of possible dangers and risks with the least damage. Although the crisis management is actually a part of disaster risk management, it can be wide enough to include disaster management, especially in the first moments of the disaster. In order to prevent the crisis which will occur after a disaster, the managers who will be in the region during the disaster should have the initiative skills [5].

- Disaster Cycle

This phenomenon is called as 'disaster continuum' in Latin, refers to all phases that follow a disaster event and follow each other until the next disaster. The major three phases of disaster risk management plans are as follows [2, 4]:

- Pre-Disaster: Preparation (Risk Reduction) Phase
- During Disaster: Intervention and Search & Rescue (First Aid) Phases,
- Post-Disaster: Recovery and Rebuilding (Humanitarian Aid, Damage Assessment, Remediation and Reconstruction) Phases [2, 4].

The main purpose of the 'Pre-Disaster: Preparation (Risk Reduction) Phase' is to keep the damages which will arise from the negative effects to a minimum with a very fast and healthy intervention. The training activities, which are the most important factor of this phase, should have a wide scope including the training personnel who will perform in disaster management or prepare disaster management plans, the training personnel of public, the non-governmental organizations and public [5].

The 'During Disaster: Intervention Phase' consists of these following issues as [5]:

- first news and transportation to the region [5],
- ensuring security, extinguishing fires if available,
- determining the requirements,
- engaging the medical teams, working of search and rescue teams,
- providing communication, evacuation,
- conservation of temporary shelter areas,
- providing food, beverage, clothing and fuel,
- environmental health regulation,
- damage assessment,
- rapid removal of hazardous debris [5].

The distinction between 'During Disaster: Intervention Phase' which aims to provide the emergency services and the public aid and 'During Disaster: Search & Rescue Phase' which follows this phase isn't clearly defined. The intervention activities such as providing the temporary housing and the clean water can also overflow during the rescue phase [2].

The main purpose of 'Post-Disaster: Recovery Phase' in which the chaotic effects of the disaster are reduced, but the crisis management continues, is to carry out the activities to return life to normal, including such as communication, transportation, water, electricity, long-term shelter and education within the disaster area. As the most complex last stage, the main purpose of of 'Post-Disaster: Rebuilding Phase', beginning from the disaster survivors return to their normal life and starting to determine their priorities, is in order to bring the living standards of the disaster victims at least to their pre-disaster conditions [5].

- Disaster Types

In terms of the countries' sustainable development and social security, disasters are the most significant factor among the other obstacles [6]. The disasters are divided into two main groups as 'nature-induced' and 'human-induced'.

The 'Nature-Induced Disasters' are based on natural events. These disaster types are listed as follows [6]:

- the sudden-developing 'nature-induced disasters' (earthquake, flood, landslide, rock fall, avalanche, storm, tornado, volcano, fire, etc.),

- the slow-developing nature-induced disasters' (erosion and desertification, drought, global warming and climate change, famine, hunger, severe cold, etc.) [6].

The 'Human-Induced Disasters', which aren't based on the power of nature itself, occur as a result of the human interaction with nature such as lack of education, ignorance, carelessness and insufficient precautions. These disaster types are listed as follows [6]:

- the nuclear, biological, chemical accidents [6],
- the information technologies / informatics attacked,
- the transport accidents,
- the industrial accidents,
- the accidents caused by overcrowding,
- the immigrants and displaced people [6].

Due to the natural events which caused loss of life and livestock in Turkey, the most likely disasters to occur are earthquakes, floods, storms, landslides, fires and avalanches. Among these disasters, the ones which are most effective in Turkey on the urban scale are 'earthquakes', 'fires' and 'floods'. Furthermore, due to Turkey's geopolitical position in which, together with terrorism, especially in Turkey's close neighbours of the turmoil and conflict, can affect Turkey's cultural heritage in diverse dimensions [2].

4. INITIAL APPROACHES ABOUT DISASTER RISK MANAGEMENT

The main policy decisions in the international community which address the disaster risk reduction and the development activities together. In this context, through these concerning documents, the significant steps taken for reducing the damages of nature-induced disasters, are as follows [6]:

- Declaring the duration between '1990 - 2000' as the International Decade of Natural Disasters Reduction (IDNDR) accepted by the United Nations (UN) General Assembly (UN 42/169, 1987 numbered resolution) in 1987 [6],
- Yokohama Strategy and Action Plan for a Safer World (1994),
- Millennium Declaration (2000),
- Preparation of the International Strategy for Disaster Reduction (ISDR) (2000),
- Global Report on Disaster Risk Reduction (2004) prepared by the United Nations Development Program (UNDP),
- Disaster Risk Reduction Conference and Hyogo Declaration (2005)
- Preparation of Hyogo Framework Action Plan (2005 - 2015),
- Global Platform for Risk Reduction by Increasing the Resilience of Nations and Communities to Disasters (2007) [6].

4.1. Effective Disaster Risk Management

In fact, this phenomenon can be defined as the realization of the works to be realized at central and local levels and the results obtained at every phase of disaster risk management (risk reduction, preparedness, response and recovery activities) in accordance with the predetermined performances and targets [6].

In line with this approach, the 'effective disaster risk management' is required to be applied through these following principles as [6]:

Integrated is required to be consisted all phases of disaster prevention, mitigation, preparedness, intervention and recovery [6],

Contemporary is needed to be collected all opportunities and resources at one point, adopting total quality management and seeing disaster as a whole [6],

Community Based:

- is required to be implemented with an understanding that ensures the participation of public institutions, non-governmental organizations and volunteers in all phases of the disasters [6],
- is needed to be prevented injuries and loss of life,
- is required to be protected livestock, socio-economic structure, natural environment, cultural and natural properties,
- is needed to be ensured the continuity of business and services, also the sustainable development [6].

4.2. Principles of a Contemporary and Effective Disaster Risk Management System

Pre-Disaster Phase: All the necessary technical, administrative and legal measures are required to be taken within the pre-disaster phase in order for the society to suffer the least harm and physical loss for potential disasters in future. Thus, the disaster mitigation efforts are needed to be included in all stages of the development. In this regard, the raise about existing risk is required to be prevented and a sustainable development is needed to be provided as well. Furthermore, in order for every segment of the society to survive the effects of events with the least damage, the training programs are required to be implemented to provide the necessary information and to train the sufficient personnel as well [6].

During Disaster and Post-Disaster Phases

As many people as possible are required to be rescued and restored to their health. In this regard, The lives and property of people are needed to be protected from the additional dangers and risks which may be caused by the disasters. Moreover, the vital necessities of communities affected by disasters are required to be as soon as possible and also ensure which life becomes normal rapidly. Therefore, the economic, social, environmental and psychological losses for potential disasters in the future should be ensured at the lowest level [6].

4.3. Role of Citizens, Non-Governmental Organizations and Other Non-State Actors in Disaster Risk Management System

The institutions and organizations involved in the disaster risk management are as follows [6]:

- Central Institutions (Ministries etc.) [6],
- Turkish Armed Forces,
- Universities,
- Professional Chambers,
- Civil Society Organizations,
- Turkish Red Crescent Association,
- Media [6].

One of the most significant consequences of the Marmara Earthquake (1999) is that citizens acted spontaneously to deliver aid to the earthquake area, either individually or through informal groups or under the umbrella of a non-governmental organization. As a major development since 1999 that, the citizens increasingly have taken part in various phases of disaster risk management, especially through organizing under the umbrella of foundations and associations as well. In fact, this situation can be described as a reflection of an ongoing change not only in the national context but also in the international context [6].

Disaster risk management is a duty, which can't be transferred by a state whose social state is a constitutional principle, has 'protective' and 'guarding characteristics' in itself. However, disaster risk management is also a day-to-day complex service which requires constant large investments in terms of both the personnel and materials for the disaster events of unknown time. Because of these features, this reality can be mentioned that disaster risk management is an ideal field for the cooperation between non-governmental organizations, public and private sectors. The participation of civil society is also critical for disaster risk reduction. The organizations which perform without expecting financial rewards make can put forward the main contribution in areas such as 'disaster preparedness', 'education-awareness', 'search and rescue', 'emergency logistics services', 'temporary housing', 'nutrition, health' and 'psychological rehabilitation' [6].

5. DISASTER RISK MANAGEMENT SYSTEM OF CULTURAL HERITAGE IN URBAN AREAS

The memory of humanity and settlements, which has been lost beyond the material losses due to the damage of the historical environments as the symbol of the continuity of civilization created by mankind and the values being carried from the past to the present, constitute the terminology of 'cultural heritage'**.** However, worldwide problems haven't yet been fully overcome in an effective and holistic disaster risk management system about the cultural heritage. That is, the documentation and conservation studies are carried out for historical environments are generally not integrated with the disaster risk management plans and the regarding legal and administrative regulations. In this context, the main reasons about the vulnerability of cultural heritage, the failure to keep a systematic record stating that the risks faced by them differing from the other building stock and the awareness which may develop accordingly haven't yet been established [2].

The major factors about the vulnerability of cultural heritage, which raise the frequency and severity of the disasters, are as follows [2]:

- urban spreading beyond the limits of 'habitability' in a safe and healthy way due to uncontrollable population growth [2],
- increasing population in certain regions,
- changing water flood boundaries as a result of faulty urbanization,
- air pollution,
- global warming,
- climate changes,
- inter-country and inter-communal conflicts [2].

In order to protect the irreversible cultural heritage when it is lost, it has become a necessity to put forward a new perspective to reduce the risks about both the nature-induced and the human-induced disasters and the damage in case of occurrence. In this regard, the diverse measures and also practices are required to be defined specifically to manage the risk factors which threaten the cultural heritage [2].

5.1. Terminology in The Field of Cultural Heritage

Cultural Property: 'The terminology of monument with extended content' within the scope of the Venice Charter was kneaded in a different terminology by UNESCO in 1976 and the term 'cultural property' was introduced to cover all material assets about the cultural traditions. This terminology, which was included in 'the Law on the Conservation of Cultural and Natural Assets numbered 2863' assigned in 1983, involves the objects and the antiquities which provide the tangible data about the artistic understanding, the science

and technological level, the social life of diverse civilizations which are the public interest of their conservation [7].

According to the acceptances current in Turkey, the values being protected in the world is gathered in the terminology of 'natural and cultural properties'. In this regard, this terminology being divided into two main groups as 'movable cultural properties' and 'immovable cultural properties', when it comes to 'immovable cultural and natural properties' divided into as 'monuments' and 'sites' within itself [7].

Site: The areas which are natural or man-made or the common product of both are called 'sites'. Due to their characteristics, sites are classified as 'natural', 'historical', 'archaeological', 'urban', 'rural' and 'complex' [7].

Urban Site and Complex Site: The streets, neighborhoods and areas which have preserved the harmonious order, architectural integrity and urban equipment of the old cities are defined as 'urban sites'. Areas which have at least two site features are defined as 'complex sites' [7].

Historical Environment: While the terminology of historical environment mostly refers to 'urban sites', also 'rural', 'historical' and 'archaeological sites' are considered in this regard. The historical environments, which are considered as open-air museums concerning past life styles, are an indication of the creativity of societies with their admirable general appearances and rich arrangements with various styles and forms, also elaborate craftsmanship [7].

5.2. Development in Recent Decades About Disaster Risk Management System of Cultural Heritage in Urban Areas

UNESCO's Convention on the Conservation of the World Cultural and Natural Heritage (1972) emerged as a result of the increasing threat of extinction of a wide variety of the cultural and natural heritage items located in a wide geography. Until the 1990s, many natural and human-induced phenomena caused the expression of the terminologies about the preparation for potential risks about the historical environments and cultural heritage. In this context, the emphasis on risk preparedness was highlighted within the scope of report involving the years of 1972-1992, in which UNESCO's work related to the World Heritage Convention was evaluated [8].

In 1992, with the call of ICOMOS, Inter-Institutional Task Force (IATF - UNESCO, ICOMOS, ICOM, ICCROM, ICA and other relevant institutions) meetings were realized. Within these meetings held with the participation of experts on the subject, these following subtitles as [8, 9]:

- financing of disaster risk management in cultural properties and historical environments [8, 9],
- emergency response,
- documentation,
- training and guidance,
- awareness

were discussed for each phase defined as 'pre-disaster', 'during disaster' and 'post-disaster'. The necessity of coordination with the preparation studies for the general disaster risks on an international scale was emphasized [8, 9].

After these meetings held by IATF, the following issues are as:

- Within the scope of 'Operational Guidelines' adopted at the World Heritage Committee's meeting held in Phuket in 1994, the concept of risk was comprehensively discussed for the first time [8, 10].
- In 1996, as a result of the Canadian Blue Shield meeting held in Quebec, Canada, a declaration titled as 'Cultural Heritage and Risk Preparedness' was issued [8, 11].
- In 1997, with the call of Japan, Kobe / Tokyo Conference was held under the title of 'Preparing Cultural Heritage for Risk' and a declaration text was produced as a result of this conference [8, 12].
- In 1998, referring to the training and the guidance title of IATF, ICCROM published 'Risk Preparedness: Management Guide for World Cultural Heritage' [8, 9].
- After the great earthquake that took place in Kobe in 2005, the 'Kobe Disaster Risk Reduction Conference', which was held in the same year with wide participation, also included the title of 'Risk Management in Cultural Heritage'. Due to the increased sensitivity on this subject, 'Risk and Risk Management Concepts' have been reflected in the decisions and the practices of the World Heritage Committee since 2005 [8].

In this context, the following issues about World Heritage Committee are as:

- At the 29th meeting actualized in Dubran in 2005, the proposals resulting from the Kobe / Tokyo Conference were accepted [8, 13].
- In accordance with the decision taken for the preparation of thematic guides at the 30th meeting held in Vilnius in 2006, 'Disaster Risk Management Guide' was published in 2010 [8, 14].
- 'Risk', 'Risk Management', 'Risk Management Plan' were discussed within the scope of all 'Application Guides' published in 2005, 2008, 2011 and 2013 [8, 10].

6. MAIN UNIVERSAL APPROACHES ABOUT DISASTER RISK MANAGEMENT SYSTEM OF CULTURAL HERITAGE IN URBAN AREAS

Disaster risk management of cultural heritage in urban areas being shaped towards the conservation of properties involved in the World Heritage List. One of the significant goals of the World Heritage Convention is to make it a compulsory for the authorities responsible about the conservation of cultural heritage within the list to establish the sufficient legal, administrative, technical infrastructure and to ensure that the states attain the similar developments for the national cultural heritage as well [8].

Although the 'cultural heritage properties' are considered belonging to the geography they are physically related to, belonging to a place where they can't be limited due to their universal belonging, in other words can be described as the 'common memory of humanity'. This belonging is measured by 'Outstanding Universal Value', which is defined as 'cultural and / or natural significance which is extraordinary enough to transcend national boundaries and have common significance for all humanity's present and future generations'. Many actions such as the detection, conservation, preservation and promotion of the cultural heritage, which are defined as 'World Heritage', have the characteristics of 'Outstanding Universal Value' being carried out in accordance with the 'World Cultural and Natural Heritage Conservation Convention' signed by UNESCO (United Nations Educational / Scientific and Cultural Organization)'s Member States in 1972 [15, 16].

6.1. Identification of Disaster Risks to Cultural Heritage

Various studies are carried out by experts to prevent the loss of value of cultural properties, especially the heritage sites being accepted to the 'World Heritage List' with their outstanding universal values and in order to keep the value-risk balance under surveillance. The World Heritage Center developed two

processes for the effective conservation of cultural properties in accordance with this contract and these concerning studies [15, 16].

According to the conservation status reports and the periodic reporting of cultural heritage properties, the 'World Heritage Committee' considers a list of factors utilized as a standard in heritage studies. Within this list, which consists more comprehensive titles under fourteen primary threat titles and was organized as a result of a two-year study by experts within the field of conservation in 2008, are as follows [15, 17]:

- construction and development [15, 17],
- transport infrastructure,
- public services and service infrastructure,
- pollution,
- biological resource use / modification,
- physical resource extraction,
- local conditions affecting physical tissue,
- social and cultural uses of heritage,
- other human activities,
- climate change and severe weather events,
- sudden ecological and geological events,
- invasive / alien species or extremely abundant species,
- management and corporate factors,
- other factors [15, 17].

6.2. Risk Preparedness and Risk Management Framework of Cultural Heritage

The plans which involve everyone who may be affected, whose deficiencies are identified through the exercises and where risks are balanced against the cultural heritage values, are required to be specific to the region in which the cultural heritage is located in line with the physical and cultural conditions [9, 15].

Based on the major approaches set out within the scope of 'Quebec Declaration', 'Kobe / Tokyo Declaration', 'ICCROM's Risk Preparedness-Management Guidelines for World Heritage', and 'UNESCO's Guidelines for Disaster Risk Management for World Heritage Sites', the major principles, which have been adopted in cultural heritage disaster risk management, are as follows [8]:

- the advanced preparation and planning [8],
- while the planning, handling cultural properties as a whole with all their tangible and intangible dimensions [8],
- taking measures which will have the least impact on the values of cultural heritage [8],
- the priority of the heritage at risk in maintenance and repair programs [8],
- the direct involvement of the local citizens in emergency action plans [8],
- the priority of the conservation of cultural properties in emergencies [8],
- taking all necessary measures to improve and restore cultural properties after disasters [8],
- the conservation principles at all phases which are integrated with risk planning, response and recovery efforts [8],
- passing through the development, testing, reorganization and retesting phases in order for the plan to mature [9, 15],
- raising the awareness among the authorities and the society about the value of cultural heritage properties [9, 15].

The preparation for the risks in terms of 'cultural heritage values' requires a realistic approach and detailed planning framework [15].

'Initial Principles of Pre-Disaster: Preparation Phase' involves reducing primary factors and risk, increasing the asset's resistance to risks, activating detection and early warning systems, developing emergency response plans, (experts, response teams, local residents), creating awareness and the awareness of people directly associated with cultural heritage properties [9, 15]. The basic principles of this phase are as follows:

- evaluating and mapping risk [8],
- reduce risk sources,
- documenting all cultural properties, especially those at risk and strengthening them against the predicted consequences of the disaster,
- developing insurance systems,
- developing and implementing early warning systems,
- preparing action plans for emergencies and making exercises [8].

'Initial Principles of During Disaster: Intervention Phase' involves ensuring the applicability of the response plan and bringing rescue teams to the disaster area right after the disaster. The significance of effective field and simulation studies are required to be emphasized to ensure that the regarding response plan is simple to perceive and familiar to all involved [9, 15]. The basic principles of this phase are as follows [8]:

- implement emergency plans
- mobilizing conservation professionals [8].

'Initial Principles of Post-Disaster: Recovery and Rebuilding Phase' involves 'reducing the negative impact of the disaster', 'reconstruction of common physical structures to provide the images of stability and well-being in the minds of the victims', 'evaluating and developing the competence of actions within the preparatory phase' [9, 15]. The basic principles of this phase are as follows [8]:

- destroying / removing the negative elements of the disaster (removing the flood water, stabilizing the moving parts, etc.),
- doing all the necessary work to recreate the physical and social components,
- reviewing preparedness and response efforts and creating a better risk management model [8].

In the context of these regarding phases, underlined the fact that the scale (single building, historical environment, cultural landscape, archaeological site etc.) are needed to be defined and implemented with the responsible actors (local residents and society, local administration, also regional, national and international institutions and organizations) for these three phases. Rather than just designing buildings, focusing on the human-oriented investments, ensuring that people perceive their values, the necessities and opportunities, emphasizing the vulnerability of the heritage and a good perception about the dangers determine the 'framework of disaster risk management' [8, 9, 15].

7. INTERNATIONAL ORGANIZATIONS AND MODELS FOR DISASTER RISK MANAGEMENT OF CULTURAL HERITAGE IN URBAN AREAS

The first and most important publication which draws attention to the issue of disaster risk management in historical environments is 'Risk Preparedness: A Management Manual for World Cultural Heritage' prepared by Herb Stovel and published by ICCROM in 1998. This study is a valuable guide in terms of 'risk reduction', 'monitoring / prevention mechanisms' and 'what to do during disasters', through considering the potential hazard factors in terms of cultural heritage [2, 9, 18].

Although the first studies which include the historical environment in disaster risk management are mostly related to 'risk reduction and preparedness in the pre-disaster phase', the management system proposal doesn't include it. For instance, 'Integrating Historical Property and Cultural Resource Considerations into Hazard Mitigation Planning' and 'The Risk Management Handbook prepared for the 'Petra-Jordan World Heritage Site' are the other comprehensive studies within this field [2, 18, 19].

7.1. Blue Shield (ICBS)

The International Blue Shield Organization, which was founded in 1996, consists of organizations related to museums, archives, audio-visual supports, libraries, monuments and sites. The International Blue Shield Committee consists of representatives of five non-governmental organizations working in this field. These institutions are listed as 'the International Council on Archives (ICA)', 'the International Council of Museums (ICOM)', 'the International Council on Monuments and Sites (ICOMOS)', 'the International Federation of Library Associations and Institutions (IFLA), Coordinating Council of Audiovisual Archives Associations (CCAAA). Furthermore, Association of National Committees of Blue Shield (ANCBS) was established in many countries [2, 20].

7.2. ICOMOS & ICOMOS-ICORP

ICOMOS (International Council on Monuments and Sites), which is a non-governmental organization affiliated with UNESCO working on a worldwide scale, is a network of experts, founded on the basis of the Venice Charter of 1964, working towards the application of theory, method and scientific techniques about the conservation of architectural and archaeological heritage [2, 21].

ICOMOS-ICORP (International Committee on Risk Preparedness) is a sub-committee of ICOMOS established to work on 'preparedness', 'risk reduction' and 'management of disaster risks for disaster risks' in historical environments [2, 22].

7.3. ICCROM

ICCROM (International Center for the Study of the Preservation and Restoration of Cultural Property), which is an intergovernmental organization, was founded in Rome in 1959, following a proposal presented at the 1956 UNESCO New Delhi Conference. There are various training programs on disaster risk reduction, such as 'first aid to cultural heritage in crisis situations', 'heritage impact assessment' and 'disaster risk management in cultural heritage' [2].

7.4. UNISDR & ISDR

UNISDR (United Nations International Disaster Reduction Strategy) is a strategic framework adopted by the member states of the United Nations in 2000. The objectives are listed as 'to direct and coordinate the efforts of a wide range of partners', 'to reduce disaster losses significantly' and 'to create resilient nations and communities which are essential for sustainable development'. UNISDR brings together all parties involved in disaster risk reduction every two years [2, 23, 24].

Established as the successor of the United Nations Decade of Natural Disaster Reduction Secretariat, ISDR (International Disaster Reduction Secretariat) system consists of 'various organizations working together and sharing information to reduce disaster risks', 'country, intergovernmental organizations', 'non-governmental organizations', 'financial institutions', 'technical structures' and 'non-governmental organizations' [2, 24].

7.5. INSARAG

INSARAG, which was established in 1991 with the initiatives of international SAR teams, is an International Search and Rescue Advisory group**.** Furthermore, INSARAG is a network for the countries and organizations which are likely to be exposed to disasters and where search and rescue activities are carried out against the disasters. The study area deals with 'Urban Search and Rescue (USAR)' and the 'operational field coordination'. The United Nations was chosen as the secretariat of INSARAG to ensure the international participation and coordination [2, 25].

8. DISCUSSION: DISASTER RISK MANAGEMENT SYSTEM OF CULTURAL HERITAGE IN URBAN AREAS IN TURKEY

According to JICA (Japan International Cooperation Organization) Report, four main periods regarding disaster risk management were mentioned as follows [2]:

- before 1944: Post-Event Intervention Period,
- between 1944 - 1958: Period of Partially Mitigating Measures,
- between 1959 - 1999: Period of Ministry Responsible for Disasters and Structuring,
- 1999 and after: The period after the Marmara Earthquake (JICA-İBB, 2002) [2].

Since the early 1960s, the implementation arrangements and the regulations covering all phases in the disaster risk management chain which concern disaster risk management have been actualized. However, Marmara Earthquake of 17 August 1999 revealed the deficiency of current arrangements and also regulations. Due to the disaster analyzes in the previous years occurred in Turkey, the effectively intervene with disasters at the desired level was failed and also disaster risks couldn't be reduced [6].

8.1. Major Role of AFAD About Disaster Risk Management in Turkey

After the Marmara Earthquake, disaster risk management organizations of the various countries, especially the USA, were examined and an effort was carried out to form Turkey's organizations and legislations**.** New legal arrangements were actualized as a result of the efforts to assess the deficiencies and also to create a new system for them. The Law No. 5902 was accepted by the Turkish Grand National Assembly on 29.05.2009, published in the Official Gazette on 17.06.2009 (numbered 27261), entered into force. Through this law, the Disaster and Emergency Management Presidency (AFAD) under the Prime Ministry was established to carry out services related to disasters, emergencies and civil defense [2, 6].
AFAD was activated on 17.12.2009 with the decision of the High Council of Disaster and Emergency. After the decision, Disaster Affairs, Civil Defense and Emergency Management General Directorates of Turkey's duties, AFAD began to be carried out by the Presidency and the Provincial Disaster and Emergency Directorate. Furthermore, through this law, Provincial Disaster and Emergency Directorates were established under the Special Provincial Administration in terms of the governor in the provinces [6].

The responsibilities of AFAD, which was established to provide the services about the disasters, the emergencies and the civil defense, are as follows [6]:

- taking the necessary measures to ensure that the services to be provided are effectively realized at the country level [6],

- preparedness and mitigation before events occur
- ensuring the coordination between the institutions and organizations which carry out the intervention to be performed during the incident and the recovery works to be carried out after the incident,
- producing and implementing the policies on these issues [6].

AFAD is authorized to cooperate and coordinate with the public institutions and organizations, universities, local governments, Turkey Kızılay Association and other relevant civil society organizations, private sector and international organizations. AFAD performs its own tasks through the following service units [6]:

- Planning and Mitigation Department [6],
- Intervention Department,
- Department of Improvement,
- Civil Defense Department,
- Earthquake Department,
- Directorate of Management Services,
- Strategy Development Department,
- Information Systems and Communication Department,
- Legal Consultancy [6].

8.2. Particular Laws and Regulations in Turkey About Disaster Risk Management of Cultural Heritage in Urban Areas

The conservation status of cultural heritage in Turkey, are noteworthy elements in the 'international' and 'national' dimensions when evaluated in the context of disaster risk management. The international dimension is determined by the World Heritage Convention. The conservation status of the World Heritage Sites in accordance with this contract has been determined by the Area Management Plans which have to be made. Within the scope of these plans, a Disaster Risk Management Plan is required. The principles regarding the Area Management and Site Management Plans covering World Heritage Sites and Sites were regulated by Law No. 2863, Law No. 5226, Law No. 3386 dated 1987 and Decree No. 648 dated 2011 [2, 26].

8.2.1. Law No. 2863

The Law on Conservation of Cultural and Natural Properties No. 2863 assigned in 1983 and underwent various alterations over time, constitutes the basic legal text within the field of conservation today. The conservation terminologies and practices about the immovable and movable cultural properties and also the responsible organizations operating within this field were defined by this law. The conservation procedures are carried out within the framework assigned by the law and sub-legislation**.** However, due to this law, there are no concepts such as 'risk', 'risk management' and 'disaster' about both the historical environments and the immovable cultural heritage properties [8].
Considering the conservation processes defined by the Law No. 2863 and its sub-legislation, the most significant factors are as follows [8]:

- Disaster risk management isn't considered as a criterion in the phase of legally determining conservation status (determination / registration procedures). However, data on disasters are included within the scope of the reports in which the board experts have information about the field and this board can be partially effective in the decision process [8].

- Although the engineering services are included in the decisions of the board or being produced by the initiative of the administration during the phase of documentation and project design, the regulations, specifications and guides which determine the principles and procedures for the preparation of these projects are inadequate.
- Although the obligation to take out 'All-Risk Insurance', which is considered as a risk measure in implementation tenders, is aimed at compensation as a result of the loss of cultural heritage properties, preventive enforcements are inadequate.
- Although the terminology of risk management isn't included within the scope of 'Conservation Development Plan' and 'Management Plan' definitions in this law, there are regulations and conventions to influence planning decisions by analyzing the factors which may pose risks.
- In the regulation about the preparation of the management area and the management plans developed for the World Heritage Sites, although there is no direct reference to the risk elements, the 'Disaster Risk Management Guide' prepared by the UNESCO Center for World Heritage Sites is taken into consideration while preparing the management plans. Within the scope of the management plans, the risks are determined, the strategies are prepared against risks and the risk management projects are produced and also 'objectives', 'scope', 'actions' and 'actors' are defined for each disaster risk management project [8].

8.2.2. Law No. 5366

Within the scope of the purposes of Law No. 5366: 'Renewal and Conservation of Deteriorated Historical and Cultural Immovable Properties', there are precautions for natural disaster risks in historical environments. Through this law and implementation regulation, making the necessary arrangements in the areas identified as having natural disaster risk in the renewal project implementations is considered among the authorities of the administration and also assigned to be based on disaster-related studies. Furthermore, if the disaster risk blocks the implementation of these projects completely, assigned within this law that the implementations can be partially or completely liquidated. On the other hand, this law and regulation don't clarify the fact unfortunately that how the disaster risks will be taken into account for the determination of the renewal area [8].

As a result, the intervention and the liquidation procedures related to the disasters can be taken into consideration during the implementation phase, not at the renewal stage of the area and also the issues about the indication of only nature-induced disasters within this law, demonstrates that 'Law No. 5366' wasn't prepared due to the disaster risk management priorities [8].

8.2.3. Law No. 5902

'Risk Management', which is defined as the process of identifying and analyzing hazards and risks at country, region, city or settlement scale, determining opportunities, resources and priorities to reduce risk, preparing and implementing policy / strategic plan / action plans (Law No. 5902 dated 2009: 'the Law on the Organization and Duties of the Disaster and Emergency Management Presidency (AFAD)', Art.2i - Art.8) is based on the relationship of strategic plans such as the management plans for cultural heritage with the components of the risk management process [15].

'Risk' is defined through the definition of 'Hazard x Vulnerability' (the regarding definition in this law as: 'a measure of the values to be lost due to the probability of danger in a particular area') within the scope of the Law No. 5902 Article 2 h. On the other hand, the emphasis on devaluation about the definitions of 'risk' and 'danger' raises anxiety, considering the value of cultural heritage properties. With its evaluation in direct proportion to the loss of value, 'risk level' has transformed from a terminological term to a real evaluation of cultural heritage [15, 27].

8.2.4. Law No. 6305

Through the Law No. 6305: 'Disaster Insurances Law', the regulations were introduced for the insurances to be taken out for various disasters in buildings where earthquakes or insurance companies have difficulties in providing coverage and to cover material losses which may occur as a result of risks. It is compulsory to have earthquake insurance within the scope of this law, which is foreseen to be covered for nature-induced disasters. Although there are difficulties in terms of providing the assurance by the insurance companies for the cultural heritage properties, there isn't any direct regulation within the scope of this law [8].

8.2.5. Law No. 6306

The Law No. 6306 dated 2012 'Transformation of Areas Under Disaster Risk', aimed to determine the procedures and the principles for the recovery, the liquidation and the renewal in areas under the disaster risk and the lands with the risky buildings. The three significant definitions brought by this law are the 'reserve building area', the 'risky area' and the 'risky building'. The transformation of buildings under the earthquake risk was planned with this law. In the first published text of this law, assigned that if there are provisions contrary to this law, Law No. 2863 and many other laws, which are the main basis of conservation, won't be applied. As a result of this fact, in case of the immovable cultural properties are declared as risky areas or buildings, they can be demolished or transformed contrary to the current conservation principles. However, in line with a decision of the Constitutional Court in 2014, the threat of destruction of the cultural heritage was eliminated under the name of 'Reducing The Disaster Risks' [8].

8.2.6. National Earthquake Strategy and Action Plan (UDSEP) 2023

The scope of the National Disaster Response Plan include such as 'preparing cultural properties against earthquake effects on the scale of national plans adopted by the Council of Ministers', 'National Earthquake Strategy and Action Plan 2023' prepared by AFAD, the interventions to be carried out in cultural properties after a disaster. Moreover, the past disasters affected cultural heritage properties of information, can be reached through 'Turkey Disaster Knowledge Base' [8].

8.3. Case Study: Disaster Risk and Management Plan Proposal of Cultural Heritage in Urban Areas in İstanbul (Dated 2011 & 2018)

Considering the high risk of earthquakes in İstanbul, the historical and cultural importance of the city and its rich cultural heritage poses a great risk in terms of world heritage. Turkey's seismicity described and the location of the Marmara Sea in Istanbul due to the magnitude of risks involved were highlighted [2, 28].

The First Management Plan of the Historical Areas of İstanbul, which was included in the World Heritage List in 1985, was completed in 2011. This plan was established in seven main themes as follows [2, 29]:

- management and organization,
- conservation, planning and quality of life,
- accessibility,
- perceiving the importance and value of the area,
- education, awareness and participation,
- visitor management,
- risk management [2, 29].

In accordance with the signed agreement, a 'Site Management Plan' is needed to be prepared within areas declared as World Heritage. Because of these reasons, three 'Risk Management Projects' were defined in

the 'İstanbul Historical Peninsula Management Plan' published in October 2011. These regarding projects are as follows [2, 29]:

- VII-PP28: Disaster Risk Reduction Research Project for Cultural Heritage in the Historical Peninsula.
- VII-PP29: Project on Strengthening and Conservation of Cultural Heritage in the Historical Peninsula against Disaster Risk,
- VII-PP30: Project for Determining Disaster Risk Areas Arising from Street Texture in the Historical Peninsula [2, 29].

Within the scope of the Istanbul Historical Peninsula Management Plan dated 2011, twelve action plans were designed under these three project packages regarding Risk Management**.** In December 2014, a Risk Management - themed focus group meeting was actualized. At the meeting, the outputs of these three project packages included in the 2011 Management Plan and the '2011 Risk Management Strengths - Weaknesses - Opportunities - Threats (SWOT) Analysis' were studied [15, 30].

The experiences gained in the Management Plan dated 2011, ongoing actions, collaborations, changing conditions and laws in this process resulted to emerge new requirements for the Management Plan dated 2018. First of all, the necessity of preparing the Disaster Master Plan specific to the Historical Peninsula Management Plan Area were determined. In this regard, the Law No. 6306 on is in conflict with the Law No. 2863 and the aims-objectives of the Law No. 5366. For this reason, assigned that the registered antiquities bearing disaster risk are required to be reorganized by giving priority to the conservation approach rather than renewal. Moreover, within the scope of this plan, the destruction of historical - cultural values and also the necessity of preventing the unconscious intervention of the local residents and Syrian immigrants living in these areas, whose sense of belonging wasn't developed, were emphasized [15, 30].

According to SWOT Analysis prepared for Disaster Risk Management indicated as 'the existence of institutional structures related to disasters' and 'their data generation capacity'. These institutions are AFAD, AKOM, IMM Directorate of Earthquake Ground Investigation, IMM Directorate of Urban Transformation, IMM KUDEB, Istanbul Project Coordination Unit, Provincial Directorate of Environment Urbanization, Kandilli Observatory, Universities, District Municipalities were indicated as 'strengths'. On the other hand, according to other SWOT Analysis, 'lack of communication between the aforementioned institutions, uncontrolled knowledge in institutions', 'lack of coordination', 'lack of institutional ownership' (not assuming permanent responsibility) and 'lack of disaster scenarios' were indicated as 'weaknesses' [15, 30].

Considering the SWOT analysis within general approach, regarding the relationship between the management plan and risk management as follows [9, 15]:

- arranging overlapping areas of responsibility between stakeholders in disaster response situations,
- considering potential competition to prevent conflict,
- predicting dilemmas which may arise in the event of a disaster,
- creating social awareness [9, 15].

'Risk identification', 'risk reduction' and 'risk management' strategies were determined in line with the goal of increasing the resilience of the management plan area against disasters and emergencies within the scope of 'Risk Management' in the 'İstanbul Historical Peninsula Management Plan' dated 2018. In this

management plan (2018), the alterations were carried out about the theme and also the contents under the following headings as [15, 30]:

- management and coordination,
- conservation-planning,
- conservation-restoration,
- accessibility,
- education, awareness and participation,
- visitor management,
- risk management [15, 30].

8.4. Particular Solution-Based Approaches About Disaster Risk Management System of Cultural Heritage in Urban Areas For Turkey

Within this section, the particular solution-based approaches for Turkey's current conditions will be pointed out due to the current references in order to construct 'new creative perspectives'.

During the 'Pre-Disaster: Preparation Phase', the fact that the vulnerability detection and the risk reduction studies are generally limited to monuments, this leads to a lack of data in historical environments Due to the fact that the problem isn't put forward in general. The other recommendations based on literature resources as follows [2]:

- lack of an effective system for detecting problems and reducing risk in historical environments causes historical environments to disappear rapidly [2].
- lack of an effective administrative infrastructure which can operate a system in which the roles of all actors are clearly defined hinders the work done in this direction.
- lack of an effective management system for managing disaster risks in historical environments causes the failure of the studies to increase manageability and capacity, which is considered to be the most effective method to reduce the disaster risks in historical environments [2].

Within the 'During Disaster: Intervention Phase', the conservation mechanisms which are active in ordinary situations don't come into effect because they don't allow the rapid movement required by an extraordinary situation or these mechanisms cause the loss of even buildings which can be recovered with certain interventions [2].

During the 'Post-Disaster Recovery and Rebuilding Phase', for the damage assessment studies carried out in historical environments, the examination criteria prepared without taking into account the special conditions of these areas are utilized. Expertise in historical construction systems isn't sought for the teams under investigation. Since all the fixing systems are for new construction techniques, many buildings built with the traditional construction systems are evaluated due to new construction systems, even if there is no problem in their structural systems or can be recovered with simple interventions, as a result, these historical buildings are completely eliminated with the concern of life safety [2].

The other solution-based approaches for Turkey based on literature resources as follows:

- Within the disaster risk management system, there is a method problem and a lack of system in the legal and administrative structure and also approach logic regarding the conservation of historical environments and cultural heritage [2].
- An institutional attitude which perceives such a situation as an opportunity to clean up 'accumulated waste' or 'unsuitable' or 'rotten' buildings due to the slogans such as 'pre-disaster

retrofitting' or 'renewal' or 'transformation' leads to transformation and renewal studies to be carried out without taking into account the cultural heritage [2, 31].

- During the calculation of risks and the planning to be prepared as a result, the historical environments shouldn't be perceived as rift areas which need to be gotten. The historical environments are required to be accepted as values which require to be conserved and carried into the future to be adopted as a principle [2].
- The projects which are prepared in historical environments are needed to be adopted jointly by residents who live and also being affected by this environment, the experts and authorities. At the same time, in these type of projects, expected to be prepared in a way to raise the awareness of people residing in these areas, the conservation criteria guaranteed by the international and national laws should also be taken into account. Furthermore, the principle of preserving historical buildings 'with their original material', 'within their original location', 'even their original function' and 'with their former local residents' (excluding the areas of depression) are required to be respected as much as possible [2].
- 'Regulations', 'specifications', 'standards' and 'guidelines' which determine the control principles of conservation processes, the strengthening-conservation criteria, the material standards and the application conditions of engineering services in accordance with the scientific data are needed to be prepared. The existing ones are required to be updated in line with the current conditions and the ways in which the regulations currently valid for new buildings to be utilized are needed to be determined. In line with the documents prepared, the regulations are required to be actualized regarding how the interdisciplinary work will be performed [8].
- The regulations for early warning systems are also needed to be utilized for the cultural heritage and the vulnerability detection methods are required to be developed for the cultural heritage [8].
- Within the disaster risk areas, incomplete documentation studies are needed to be completed. In this regard, for instance, through the 'National Inventory of Registered Real Estate Inventory', which began to work on the creation of immovable cultural assets in digital environment, the integrated disaster hazard maps are required to be overlapped and lists of cultural assets at risk are needed to be completed. Furthermore, the existing data in the establishment of archives are required to be delivered to 'Turkey Disaster Knowledge Bank' and also the past disaster data being obtained from this bank are needed to be utilized in the retrofitting studies [8].
- In the context of budgeting and the resource transfer studies, the priority is required to be given to the factors under disaster risk and for the elements exposed to disasters, the conservation works are needed to be completed primarily [8].
- The participation of AFAD representatives are required to be ensured in the meetings regarding the cultural assets located in disaster risk areas within the body of the High Council and Regional Conservation Council [8].
- The local residents of cultural heritage properties should receive training within the scope of disaster risk management and are needed to be directly involved in the emergency action plans as well [8].
- The emergency plans are required to be made in coordination with AFAD, the post-disaster detection procedures and criterions to be taken are needed to be determined and AFAD personnel are required to be trained to work on the values of cultural heritage [8].
- The preparations are needed to be carried out during and after the disaster through the planning and exercises about the personnel support provided by Ministry of Culture and Tourism [8].
- Through creating an insurance system for the cultural heritage, the principle of continuous care and the periodic monitoring processes are required to be provided an element of the insurance system. Moreover, the supervision for continuous maintenance by the insurance companies or the

independent organizations are needed to be considered as a criterion for the supports and sanctions for the cultural heritage [8].

9. CONCLUSION

The major goal of this paper is to discuss the phenomenon of Disaster Risk Management of Cultural Heritage in Urban Areas and its application to the selected case study area.

As a result of the literature research on the disaster risk management of cultural heritage sites, international organizations involved in the Disaster Risk Management and the main national organisation 'AFAD' and 'Related Institutions' are explored. The significant issue is that in the context of existing laws and regulations related to disaster risk management in Turkey, the subject of Disaster Risk Management of Cultural Heritage is less studied.

Therefore, the main objective of this paper is to apply the proposed method as a case study in the historic peninsula in ıstanbul. The precise decision about 'Pilot Area' of the proposed method is ongoing and potentially related with 'disaster risk management of cultural heritage in urban areas' within Historical Peninsula.

In conclusion, as the subtitle of the Disaster Risk Management concept in Turkey's Disaster Risk Management of Cultural Heritage in Urban Areas in Turkey, this study aims to propose 'theoretical and practical level' of its field. It also can be considered as a critical step for not only providing the acceleration of development and improvement of the existing drawbacks in its field but also going beyond to create 'awareness of the public' in Turkey.

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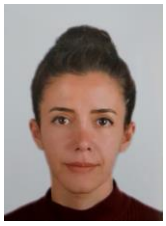
Investigation of Knowledge About Building Deconstruction Concepts of Companies in the Field of Urban Transformation in Turkey

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Abstract: *Buildings are demolished uncontrolled regardless of the disassembly and recovery possibilities in demolition activities realized within the scope of urban transformation. As a result of the demolition works carried out mostly by using traditional methods, excessive constructional waste is generated and left to nature. This situation causes important environmental and health problems and increases the consumption of energy and natural resources. It is necessary to produce innovative and environmentally protective solutions in order to reduce the negative consequences of demolition activities within the scope of urban transformation. The concept of deconstruction, which is considered as an alternative for the demolition of buildings, is one of the solutions evaluated in this context. It is possible to eliminate or reduce the negative effects of demolition activities by using building deconstruction methods in the field of urban transformation. However, the applicability of appropriate methods depends on the knowledge of the companies serving in the field of urban transformation about the concept and methods of deconstruction, and their level of having appropriate infrastructure and equipment. In this context, a field study was conducted in order to determine the knowledge levels of firms operating in the field of urban transformation and their general approach to the concept of deconstruction. In the study, a questionnaire was applied to company officials in accordance with the survey method, the answers were analyzed with the SPSS program, and the findings were obtained depending on the frequency and percentage distribution, average and standard deviation values of the answers. Findings were evaluated using the pairwise comparison method. As a result of the study, a general evaluation has been done on the knowledge and implementation levels of the companies in building deconstruction.*

Keywords: *Building deconstruction, urban transformation, demolition, disassembly, recovery.*

Türkiye'de Kentsel Dönüşüm Alanında Hizmet Veren Firmaların Bina Yapıbozum Kavramı ile İlgili Bilgi Durumlarının Araştırılması

Özet: *Kentsel dönüşüm kapsamında gerçekleşen yıkım faaliyetlerinde söküm ve geri kazanım olanakları sorgulanmadan binalar kontrolsüz bir şekilde yıkılmaktadır. Çoğunlukla geleneksel yöntemlerin kullanılarak gerçekleşen yıkım çalışmaları sonucunda çok fazla yapısal atık oluşmakta ve doğaya terk edilmektedir. Bu durum önemli çevre ve sağlık sorunlarına neden olmakta enerji ve doğal kaynakların tüketimini arttırmaktadır. Kentsel dönüşüm kapsamında gerçekleşen yıkım faaliyetlerinin olumsuz sonuçlarının azaltılması için yenilikçi ve çevreci çözümlerin üretilmesi gereklidir. Binaların yıkımı için bir alternatif olarak görülen yapıbozum kavramı bu bağlamda değerlendirilen çözümlerdendir. Kentsel dönüşüm alanında bina yapıbozum yöntemlerinin kullanılması ile yıkım faaliyetlerinin neden olacağı*

olumsuz etkileri yok etmek ya da azaltmak mümkündür. Ancak uygun yöntemlerin uygulanabilirliği kentsel dönüşüm alanında hizmet veren firmaların yapıbozum kavramı ve yöntemleri konusundaki bilgi birikimlerine, uygun altyapı ve ekipmanlara sahip olma düzeylerine bağlıdır. Bu bağlamda çalışmada kentsel dönüşüm alanında faaliyet gösteren firmaların yapıbozum kavramı ile ilgili bilgi düzeyleri ve konuya genel yaklaşımlarını belirlemek amacı ile bir alan çalışması yapılmıştır. Çalışmada anket yöntemi ile firma yetkililerine sorular yöneltilmiş, yanıtlar SPSS programı ile analiz edilmiş, yanıtların frekans ve yüzde dağılımları, ortalama ve standart sapma değerlerinden yararlanılarak bulgular elde edilmiştir. Bulgular ikili karşılaştırma yöntemi kullanılarak değerlendirilmiştir. Çalışmanın sonucunda firmaların bina yapıbozum konusu ile ilgili bilgi ve uygulama düzeyleri ile ilgili genel bir durum tespiti yapılmıştır.

Anahtar Kelimeler: *Bina yapıbozumu, kentsel dönüşüm, yıkım, söküm, geri kazanım.*

1. INTRODUCTION

Urban transformation is a concept that includes the actions and strategies created to improve the collapsed and deteriorated areas of the city as a result of war and natural disasters and to improve the economic, social, environmental and physical issues with an integrated approach [1]. In urban transformation practices, instead of maintenance, refurbishment or reinforcement works aimed at reducing the disaster risk of the buildings, the buildings were rapidly demolished and constructed.

Earthquake is the prominent natural disaster in Turkey. The possibility of a devastating earthquake is very high for the large settlements include the 70% population of the country in Turkey. For instance, in the earthquake scenario for Istanbul, it is predicted that approximately sixty thousand buildings would be heavily damaged and fifty thousand people would die [2]. According to the Ministry of Environment and Urbanısation, nearly 14 million of the 19 million houses in Turkey are required to be examined in terms of disaster risk. In this context, the Ministry of Environment and Urbanization predicts that buildings do not meet the earthquake-safe design and construction criteria, should be demolished within the next 20 years. Accordingly, it aims to demolish and reconstruct an average of 334.000 buildings annually within the scope of urban transformation [3]. Accordingly, it is aimed to consider that the urban transformation covers a large portion of the existing building stock in Turkey, a transformation process in which the roles of all relevant disciplines are defined and the control mechanisms work properly should be planned. Unplanned approaches to urban transformation, rapid demolition and construction activities have created many environmental and management problems such as energy and natural resource consumption, waste generation, health and safety. Many researches have been initiated to produce more environmentally solutions to reduce the problems that arise. One of them is the concept of building deconstruction, regarded as an alternative to demolition. Implementations within the scope of this concept aim to reduce the amount of constructional waste by researching the disassembly and recovery potential of buildings that have completed their service life before demolition. It also helps to reduce many negative environmental impacts caused with demolition by using more environmentally friendly and innovative methods in cases where demolition is inevitable.

2. DECONSTRUCTION

The concept of deconstruction first arose in the 1960s with the leadership of post-structuralist philosopher Jack Derrida, as an opposing view to the concept of structuralism. The concept of deconstruction advocates that old texts can be reconstructed and new meanings constructed, based on the acceptance that language is a tool whose outlines are not clearly drawn. Derrida saw the concept of deconstruction as a metaphor, especially an architectural metaphor [4]. The concept of deconstruction, which has become widespread in fields such as philosophy, literature, linguistics, sociology, aesthetics, and communication, turned into a trend in the field of architecture by architects such as Peter Eisenman and Bernard Tschumi

in the 1980s. Esin (1989), explained the concept of deconstruction in the field of architecture as "the coexistence of forms that are different from each other, that affect each other, even disrupt, but do not try to destroy each other. "

In many scientific studies published in the 1990s, the concept of deconstruction has been suggested as an important strategy that can assist architects in solving problems such as natural resource consumption, economic waste, more and more deterioration of the ecological environment caused by conventional disassembly and demolition. In this context, deconstruction can be explained as "a strategy that allows the parts of a system and the whole system to be reused or recycled, in other words, to be disassembled and decompose successfully for recovery. "

With the introduction of design strategies such as "design for recycling", "design for reuse", "design for reproduction", "design for disassembly" which were previously applied in the field of industrial product design, the "Design for Deconstruction (DfD) " approach has developed in architecture. DfD is a design approach that aims to recover environment and its parts at the end of service life, thus extending their lives. With the DfD approach, it is possible to systematically disassembly the components of buildings without causing damage at the end of the service life, and to extend their lives by reusing or recycling these components in the future. This approach allows the existing and new building stock to serve as primary resource and material for future changes, extracted and obtained from the existing building stock rather than consuming the natural environment. Therefore, the DfD approach can be regarded as an alternative solution to traditional demolition where all components turn into constructional waste [6, 7].

Deconstruction, unlike demolition, provides natural resource conservation by preventing the creation of constructional waste with recycling and reuse approaches [8]. According to Macozoma (2001); "Deconstruction prevents most of the wastes generated in construction and demolition from going to waste areas". This helps to extend the life of building components, to reduce health problems caused by demolition, and to use waste storage areas in a controlled manner.

The construction and demolition sector is responsible for the generation and disposal of a large part of waste, many of which can be recycled or reused. Deconstruction activities can recover million tons of construction and demolition waste for recycling and reuse. Deconstruction reduces the need for incineration and storage and gas emission in the air by reducing waste generation. Most importantly, it directly helps the construction and demolition industry from traditional consumption and destroying activities in the face of sustainability and reuse [10].

In urban transformation works where demolition activities take place intensely, the negativities caused by demolition are eliminated with the environmental and practical solutions offered by the concept of deconstruction and the process is carried out in a healthier way. The implementation of the concept of building deconstruction in the field of urban transformation depends on the teams to be assigned to have a certain level of knowledge about the methods, implementation techniques and related legal regulations that the concept includes. Therefore, in the study, it is aimed to determine the knowledge and implementation levels of firms working within the scope of urban transformation in Turkey about the concept of building deconstruction.

2.1 Deconstruction Methods and Techniques

It is possible to use building deconstruction methods such as disassembly, selective demolition and recovery to prevent the components of buildings from being released to the environment as waste when their service life ends.

2.1.1. Disassembly and Selective Demolition Methods

During the construction process, disassembly separates the building system into its components, allowing a high recovery within a certain order.

Disassembly of the building and its components is possible when certain design conditions are provided. In the publication entitled "Design Guide for Disassembly", it is emphasized that 10 basic principles are needed for the design of a building for disassembly [11].

- Document materials and methods for deconstruction
- Select materials using the precautionary principle
- Design connections that are accessible
- Minimize or eliminate chemical connections
- Use bolted, screwed and nailed connections
- Separate mechanical, electrical and plumbing systems
- Design to the worker and labor of separation
- Simplicity of structure and form
- Interchangeability
- Safe deconstruction

Conventional demolition can be defined as destroying the building without considering the recovery possibilities of the building components. In the specified situation, the recycling of components, hazardous material management, occupational health and safety issues are not considered very much. However, nowadays, the concept of selective demolition has emerged, which reduces environmental problems caused by the demolition of buildings and enables controlled recovery of building components.

Recently, many studies have been carried out on building demolition methods and tools, seeking more environmentally friendly and innovative solutions, giving importance to human health and safety. One of them is water jets that do not cause noise, dust and vehicle traffic, cares occupational health and safety, and provide less water consumption. They allow to disassemble the concrete and reinforcement inside the reinforced concrete system with the least damage [12].

Some methods and tools have been developed that allow the demolished parts to be separated on the site. One of them is grapple and magnet attachment, while the magnetic part selects the iron-containing building components, the clamp part allows the parts to be easily grasped from the rubble pile and moved to the relevant places. The other is bucket crusher attachment, helps to easily carry large size building components in the site as a result of demolition. It also ensures that the building components are grinded and decomposed in the site without going to recycling or waste areas [13].

2.1.2. Recovery Methods

There are several strategies for the recovering of a building system and its parts at the end of their life cycle, from complete relocation and reuse, to part recycling or incineration for energy It is possible to discuss recovery strategies under two headings as reuse and recycling. Reuse strategy is the process in which building parts removed from its original location and used it again at another location. Recycle is

the process in which building parts break down into raw materials so that they can be processed into building materials or manufactured into building components [14].

2.1.3. Deconstruction Implementation Processes

There are three important application processes for the separation of a building or building part that reaches the end of its service life. These are design, implementation and control processes for demolition / disassembly. The deconstruction implementation process of a building that has completed its service life is organized by considering its site, environmental, structural product and material properties, occupational health and safety, laws and regulations and the practice and training levels of the teams to work.

In order for deconstruction processes to function properly, there is a need for an information management system where design and implementation processes can constantly exchange information with each other. Necessary design information, analyzes, reports, documents should be delivered to the application teams through the information system, and at the same time, the return information about the necessary corrections in the application should be delivered to the design teams in a healthy and uninterrupted manner through the information system. There is also a need for an audit process to check whether the design decisions are made in accordance with the deconstruction and whether the decisions are implemented in the field under appropriate conditions [9, 15, 16].

2.1.4. Legal Regulations

In many countries, studies are carried out on planning, implementation and legal regulations to reduce and eliminate the negative effects caused by building demolition activities. In particular, the studies on the reduction of waste generation and the recycling of the waste generated have been supported by the governments. Selective demolition practices have become a legal requirement in many countries for a controlled demolition process by pre-designing the demolition process.

In addition, green building evaluation and certification systems that are valid in many countries such as LEED, BREEAM, DGNB have been established for the sustainability and protection of buildings and building parts to be applied throughout the life of the buildings.

There are a variety of legal arrangements in Turkey, including demolition, recovery and urban renewal titles. These are;

- The Environmental Law, which was created in 1983 to protect the environment in line with the principles of sustainable environment and sustainable development,
- Excavation Soil, Construction and Demolition Wastes Control Regulation, which was created in 2004 for the management of construction and demolition wastes and excavation soil that will occur during and after the construction, demolition process,
- Regulation on the Landfill of Wastes, which was created in 2010, which includes technical and administrative issues related to eliminating environmental pollution caused by wastes, determining the acceptance conditions of waste storage areas and how the facility will be operated,

- The Law on the Transformation of Areas Under Disaster Risk, which was established in 2012, which includes the procedures and principles of improvement and renovation works to create healthy and safe environments in areas with risky structures,
- Waste Management Regulation, created in 2015, which includes certain criteria, conditions and features in order to reduce waste generation and use of natural resources and increase recovery opportunities in the entire process from waste generation to disposal without harming the environment and human health,
- It is the Green Certificate Regulation for Buildings and Settlements, which was created in 2017, which aims to eliminate adverse conditions affecting the environment by protecting natural resources and increasing energy efficiency in residential areas, providing evaluation, certification system, determining the authorities of those who will take part in the process.

The draft regulations that have not yet come into force are;

- Draft Regulation on the Control of Demolition Operations and Excavation Soil, Construction and Demolition Wastes in order to increase the efficiency and effectiveness of the demolition and excavation activities and the management and control of the excavation soil and construction and demolition wastes that will arise as a result of these activities in a way that does not harm the environment and human health and safety,
- It is the Draft Regulation on Sustainability Performance Urban Transformation, which includes the necessary conditions and procedures for the creation of more sustainable and ecological areas as a result of urban transformation applications.

3. METHOD

In order to determine the level of knowledge and implementation regarding the concept of building deconstruction, a survey consisting of 8 questions was prepared in the study. The survey was created using scientific research techniques. The questions were prepared in a clear and understandable language [17]. Participants were asked to read a pre-evaluation text before answering the questions. In this text, the aim of the study, short definitions about the concepts subject to the research, information about the protection of the institutional and personal data of the participants are included.

The sample of the study was determined as the companies operating in the field of urban transformation in line with the purpose of the study. According to TurkStat (Turkish Statistical Institute) data, the total building stock in Turkey is approximately 19.5 million, where about 4 million of this stock is located in Istanbul. In the same source, there is the information that approximately 70% of the building stock in Istanbul was built before 2001, 18% was built after 2001, and 12% is not known when it was built [18]. 68 thousand of 197 thousand risky buildings ascertained by the Ministry of Environment and Urbanization since 2012 are located in Istanbul [19]. According to the data; The majority of the buildings, constructed before 2001 in Turkey, which are uncontrolled and classified as risky are located in Istanbul.

In addition, ın Turkey, most of the construction activities in the urban transformation take place in Istanbul. For this reason, Istanbul province was chosen as the study area. Many companies operate in the field of urban transformation in Istanbul. Accordingly, in forming the sample cluster, priority was given to the companies that have an institutional and organizational infrastructure and with experience in urban transformation.

As a result of the researches conducted in this context, companies operating in the field of urban transformation in Kadıköy -a district in Istanbul- where urban transformation implementations take place the most, were examined. It was ascertained that these companies are members of the Anatolian Side Construction Contractors Association (ASCCA). It was foreseen that these companies, which operate under a corporate roof, will contribute to the planned execution of the study, and the sample cluster was determined as companies that are members of ASCCA and carry out urban transformation implementations.

It has been stated that 5 of the 155 companies that are members of ASCCA do not carry out construction activities anymore. The survey form was sent via e-mail to 150 companies that continue their activities. It was thought that there might be some difficulties in reaching companies by mail and in companies considering the survey. In order to get the responses safety and rapidly to the survey, it was decided to conduct the survey with face-to-face interviews. An appointment was requested by establishing direct contact with the companies via phone and e-mail. A total of 30 companies accepted the meeting request. It was ensured that companies fill out the survey form with face to face interviews. The interviews were implemented with the managers or the most authorized person (architects, technical managers, project managers, directors and deputy managers, managers and company owners) in the company. The survey was applied between 1 November 2018 and 15 December 2018.

The answers to the survey questions were evaluated using the SPSS 24.0 (Statistical Package for Social Science) program. While analyzing the answers obtained from the questions;

- Frequency and percentage distribution of firm characteristics,
- Average and standard deviation values were calculated in order to determine the knowledge level of firms about the concept of deconstruction.

4. FINDINGS

In the study, firstly, in order to understand the general structures of participating companies, questions were asked about their working areas, the types of services they provide and the teams they employ. According to the answers to the questions, first of all, the working fields of the companies are examined in Table 1.

While 9 (30%) companies participating in the research operate only in the field of construction, the other 9 (30%) operate both in the field of design and construction. 5 companies operating in both construction and production fields, 6 companies operating in both design, construction and production fields and 1 company operating only in the field of design.

***Table 1**. Working fields of the companies participating in the survey.*

Working fields	Frequency (N)	Percentage (%)
Design	1	3.3
Construction	9	30.0
Design and Construction	9	30.0
Construction and Production	5	16.7
Design, Construction and Production	6	20.0
Total	30	100.0

The working fields of the company authorities that answered the survey are included in Table 2. 12 of the company officials who answered the survey stated that they work in the field of design and construction, the other 9 only in the field of construction, 4 officials in the field of design, construction and production, and 3 officials in the field of construction and production. Twelve of the officials are company owners, and four of them declared their job descriptions as architects, one as civil engineer and two as contractors. 3 of the officials are company partners and one of them defined the professional group as architect. 3 of the authorities are managers and one of them has defined his role as an architect. While 4 of the officials are doing project control, 2 of them are the general manager, one is the assistant manager, one is the site chief, one is the procurement specialist and one is the administrative.

***Table 2.** The working fields of the company authorities that answered the survey.*

Working fields	Frequency (N)	Percentage (%)
Design	1	3.3
Construction	9	30.0
Production	1	3.3
Design and Construction	12	40.0
Construction and Production	3	10.0
Design, Construction and Production	4	13.3
Total	30	100.0

Service types provided within the scope of new building project, existing building maintenance-refurbishment-retrofit project, restoration project and urban transformation projects were gathered under 10 headings in the survey. The companies were asked which of the service types specified in the survey they provided within the company and the findings in Tables 3 and 4 are obtained. It has been determined that the companies participating in the survey serve within the scope of urban transformation project. In addition, while 29 companies (96.7%) provide services in the field of preliminary project design and drawing in urban transformation projects, 27 of them (90%) provide services in the field of detail and final drawings.

Table 3. *The services types that companies provide according to their project types.*

Service Types	New Building Project	Existing Building Maintenance-Refurbishment-Retrofit Project	Restoration Project	Urban Transformation
Preliminary project design and drawing	23	7	2	29
Detail and final drawings	20	6	3	27
Static calculations, drawings and reports	15	3	2	18
Mechanical system calculations, drawings and reports	10	3	2	13
Electrical system calculations, drawings and reports	10	2	2	13
Assembly and disassembly plan, detail drawings and reports	11	3	2	16
Demolition plan, detail drawings and reports	8	2	2	14
Scenario-based design and detail drawings	11	5	1	14
Recovery cost analysis	8	2	1	13
Life cycle assessment analysis	11	4	2	14

Table 4*. The services types that firms provide in the field of urban transformation.*

Service Types	N	%
Preliminary project design and drawing	29	96,7
Detail and final drawings	27	90,0
Static calculations, drawings and reports	18	60,
Mechanical system calculations, drawings and reports	13	43,3
Electrical system calculations, drawings and reports	13	43,3
Assembly and disassembly plan, detail drawings and reports	16	53,3
Demolition plan, detail drawings and reports	14	46,7
Scenario-based design and detail drawings	14	46,7
Recovery cost analysis	13	43,3
Life cycle assessment analysis	14	46,7

Findings regarding the teams employed by the companies are included in Table 5. According to this; most of the companies stated that they have architectural design team (87%), structural system construction team (63.3%), electrical system construction team (60%) and mechanical system construction team (56.7%). A small portion of the companies expressed that they have a demolition team (43.3%), an environmental health and safety team (36.7%) and a product design team (33.3%). In addition, very few companies stated that they have an assembly-disassembly team (23.3%), hazardous waste management team (10.0%), life cycle assessment team (6.7%), and constructional waste assessment team (6.7%).

Table 5. *The teams employed by the companies.*

Teams	N	%
Architectural design team	26	86,7
Product design team	10	33,3
Structural system design team	15	50,0
Mechanical system design team	10	33,3
Electrical system design team	11	36,7
Structural system construction team	19	63,3
Mechanical system construction team	17	56,7
Electrical system construction team	18	60,0
Demolition team	13	43,3
Assembly-disassembly team	7	23,3
Structural system production team	3	10,0
Plumbing system production team	4	13,3
Electrical system production team	5	16,7
Constructional waste assessment team	2	6,7
Hazardous waste management team	3	10,0
Occupational health and safety team	15	50,0
Environmental health and safety team	11	36,7
Life cycle assessment team	2	6,7

An open-ended question was asked to find out the teams within the companies, other than the teams specified in the survey. 13 companies expressed that they work with teams other than listed in the survey and / or receive services from subcontractors. One firm stated that it has “visual communication and advertising, landscape and botanical expert, geotechnical evaluation specialist, ground survey, map engineer” within the company, apart from the work teams listed in Chart 5, and two firms declared that they have benefited from the work teams of the municipality, especially on constructional waste.

Findings regarding whether the firms have information about building deconstruction are included in Table 6. 26.7% of the participants stated that they did not know the concept of deconstruction, 26.7% partially knew and 46.6% stated that they knew. All of the companies (96.7%) expressed that they had information about the demolition, 90% of companies had information about disassembly.

Table 6. *The knowledge level of firms about concepts related to deconstruction.*

Concepts	I do not know		I partially know		I know		Average	Standard Deviation
	N	%	N	%	N	%		
Deconstruction	8	26,7	8	26,7	14	46,6	2,20	0,84
Recovery-Recycling	-	-	6	20,0	24	80,0	2,80	0,40
Recovery-Reuse	-	-	6	20,0	24	80,0	2,80	0,40
Disassembly	-	-	3	10,0	27	90,0	2,90	0,30
Demolition	-	-	1	3,3	29	96,7	2,96	0,18

In the survey, the participants were asked whether there are any other concepts they know about the concept of building deconstruction. Answers given; It was ascertained as “no” with 80% and “yes” at 20%. When the statements given by the 6 companies that answered yes to the question are examined, the concepts stated by the companies are respectively;

- Consolidation, Reintagnation

- Sustainability
- Restoration, Renovation, Restitution, Conservation
- Post-modern architecture
- Reconstruction
- Ecological structure, ecology
- Maintenance-Refurbishment.

It was requested from the firms to answer which sources they obtained information about deconstruction and other concepts. The responses obtained are indicated in Table 7. 18 companies expressed their sources of information regarding Deconstruction as face-to-face meetings with other companies or individuals. 18 firms declared their sources of information on recycling as visual and audio materials, and 13 firms stated their sources of information on disassembly as visual and audio materials. Most of the participants who expressed their sources of information about the concepts as "other" represented this resource as "sample implementations."

***Table** 7. Information resources of firms about concepts related to deconstruction.*

Concepts	Printed	Digital	Audio / Visual	Individual	Other
Deconstruction	7	7	4	18	7
Recovery-Recycling	14	12	18	14	12
Recovery-Reuse	11	11	15	13	10
Disassembly	7	6	13	13	11
Demolition	10	8	12	18	15

When the knowledge levels of the companies participating in the research and their sources of information about the concepts were examined in cross tables. These findings are as follows:

- 7 out of 14 companies which have information about deconstruction stated that their information sources are printed and digital materials.
- 24 companies declared that they had information about recycling. It was determined that 11 of firms are printed materials, 10 of them are digital materials and 14 of them are audio and visual materials.
- 24 companies that have information about reuse. 10 of them explained their sources as printed materials, 9 of them as digital materials and 11 of them as visual and audio materials.
- 27 companies that have information about the concept of disassembly. A few of them stated that their information source is printed (7 companies) and digital materials (6 companies), while almost half (13 companies) have the information source with other companies and individuals (face-to-face interviews).
- 29 companies stated that they had information about the demolition. 8 of them expressed their sources as printed and digital materials, 11 of them as visual and audio materials and 18

companies as face-to-face interviews with other companies and individuals and their previous practices under the other heading.

It was also verbally declared by the company officials that the face-to-face survey study contributed to the knowledge of the concept of deconstruction. In addition, companies' other sources of information;

- The Union of Chambers of Turkish Engineers and Architects (TMMOB) website, ASCCA official website
- Archdaily, Dergipark (engineering and basic sciences), Journal of Construction, Architecture XL Magazine
- Their field practices.

In the survey, it was asked to the firms whether deconstruction and other concepts are important for Turkey construction sector and the findings obtained in Table 8 are expressed. Participants were asked to evaluate the importance of these concepts. According to the answers given, firms stated that the concept was important for Turkey construction sector (Avg: 2.90).

***Table 8**. According to the companies, the importance levels of concepts, in Turkey's construction sector.*

Concepts	Unimportant		Less Important		Important		Average	Standard deviation
	N	%	N	%	N	%		
Deconstruction	-	-	3	10,0	27	90,0	2,90	0,30
Recovery-Recycling	-	-	3	10,0	27	90,0	2,90	0,30
Recovery-Reuse	-	-	3	10,0	27	90,0	2,90	0,30
Disassembly	-	-	3	10,0	27	90,0	2,90	0,30
Demolition	-	-	7	23,3	23	76,7	2,76	0,43

The companies were asked whether they know case studies in Turkey and other countries about deconstruction and answers obtained were examined in Table 9. 26 companies stated that they know about the most of the demolition practices in Turkey. Besides, 23 of them declared to know case studies about recycling, 17 of them about reuse and 11 of them about disassembly and deconstruction in Turkey. In addition, 3 of the companies participating in the research expressed that they know a case study in the world in the field of deconstruction, while 9 companies stated that they know examples of implementations in the world in the fields of recycling, reuse, demolition and disassembly. The responses given by the companies that stated their knowledge of case studies were examined separately and the following findings were obtained:

- It was stated that these concepts are used in demolition implementations in urban transformation projects realized in Turkey. It was stated that during the waste removal process after demolition, materials are separated to polymer, concrete metal... etc and processed in recycling facilities. In addition, it was stated that the construction areas where recycling materials (especially in infrastructure systems and as filling material) are mostly as metro and residential constructions.

- In addition to the demolition implementations in the process of urban transformation projects in Turkey, the conservation of cultural or historic buildings works are also given as examples.
- GOLD certified Mustafa Bey Apartment, Fikirtepe Evinpark Kadıköy Project and Ata apartment built in partnership with TERECE Gayrimenkul in Suadiye are given as case studies where the recycling concepts are applied.

***Table 9**. The number of case study about the concepts that the firms know in Turkey and the other countries.*

Concepts	Turkey	Other Countries
Deconstruction	11	3
Recovery-Recycling	23	9
Recovery-Reuse	17	9
Disassembly	17	9
Demolition	26	9

It was requested from the firms to response whether they know implementation techniques about deconstruction in Turkey and other countries, answers obtained were examined in Table 10. Total 26 companies stated that they know about the most demolition implementation techniques in Turkey. Besides, for the field of recycling 22 companies, the field of reuse 18 companies, the field of disassembly 16 companies and the field of deconstruction 9 companies also declared that they know implementation techniques in Turkey.

***Table 10.** The number of implementation techniques about the concepts that the firms know in Turkey and the other countries.*

Concepts	Turkey	Other Countries
Deconstruction	9	2
Recovery-Recycling	22	9
Recovery-Reuse	18	10
Disassembly	16	9
Demolition	26	11

The responses given by the companies that stated that they knew the application technique were examined separately. The following techniques came to the fore:

- For demolition; total demolition up to 6 floors, demolition shears up to 5 floors and mini machine techniques for buildings 5 floors and above 5 floors, excavator, crushing technique, hydraulic cutting, dynamite / electric blasting techniques,
- For recycling; separation technique,
- For reuse and recycling; disassembly of joinery, radiators, staircase and balcony railings and iron fittings in concrete to be sent to factories.

In Turkey and in other countries, it was asked to the firms whether they knew about the deconstruction legal regulations and responses were investigated in Table 11. Total 24 companies stated that they know about the most demolition legal regulations in Turkey. Besides, to the field of recycling 18 companies, the

field of reuse 8 companies, the field of demolition 8 companies and the field of deconstruction 5 companies stated that know the legal regulations in Turkey. Most of the companies stated that they know the Urban Transformation Law No. 6306.

Table 11. *The number of legal regulations about the concepts that the firms know in Turkey and the other countries.*

Concepts	Turkey	Other Countries
Deconstruction	9	2
Recovery-Recycling	22	9
Recovery-Reuse	18	10
Disassembly	16	9
Demolition	26	11

The studies conducted by the companies on the concepts were asked and the answers are given in Table 12. It was interviewed that companies mostly work in the fields of projects and implementation related to the concepts. It has been determined that the most studies have been done on recycling and demolition issues, while the least work has been done on deconstruction. One of the companies stated that, they have completed over 200 urban transformation Project. As the company that makes the most urban transformation applications in ASCCA, and comprehensively deals with the concepts related to deconstruction in their applications. Two of the companies stated that they carried out papers, seminars and projects on behalf of ASCCA, including concepts related to deconstruction.

Table 11. The studies that companies have done on deconstruction concepts.

Concepts	Article	Report	Book	Journal	Seminar	Project	Implemen -tation	Other	Total
Deconstruction	0	0	0	0	0	3	3	2	8
Recovery-Recycling	1	5	1	2	2	7	13	2	33
Recovery-Reuse	1	5	1	3	2	8	10	1	31
Disassembly	0	2	0	1	1	4	8	1	17
Demolition	1	3	1	2	2	7	15	1	32
Total	3	15	3	8	7	29	49	7	

5. CONCLUSION AND RECOMMENDATION

The general approaches of the companies working in the field of urban transformation regarding the concept of building deconstruction were examined together with a survey organization within the scope of this study. Firstly, a preliminary information section was created in the survey to help companies express their fields of work, the types of services they provide and the work teams they have within their organization. The demographic characteristics of the companies were determined with the information obtained from this section. In the light of the data obtained, it has been ascertained that all of the companies provide services in the field of urban transformation. The responses given by the companies for the types of services they provide in the field of urban transformation (Table 4) and the teams they have within their organization (Tabe 5) have been examined. As a result of the examination, the following findings were obtained:

- It has been determined that the most of the companies participated to the survey provide services related to preliminary project design and drawing, detail and final projects, static, electrical and

mechanical projects in the field of urban transformation. It has been ascertained that a small number of companies perform services such as assembly, disassembly, demolition plans, recovery and life cycle evaluation analysis.

- Although most of the companies have design and construction teams within their organization, it has been determined that very few companies do not have demolition, disassembly-assembly, structural waste assessment, hazardous waste management, occupational and environmental health and safety, life cycle assessment teams.

Later in the survey, questions were asked to determine the knowledge levels of the companies. The answers given to the questions were analyzed separately and in pairwise comparisons. The findings are summarized below:

- It has been ascertained that few companies know the subject of deconstruction and many companies know the other concepts.
- It is understood that the sources of information of the companies that indicate that they have information about the concepts are mostly audio / visual sources and people in the construction sector. It has been found out that companies do not use print and digital resources to obtain information about the concepts. The reasons for this situation are that companies are less interested in such resources, have difficulty in accessing resources, and lack of sufficient knowledge to examine resources.

As a result of the study, it is stated that firms working in the field of urban transformation have a general knowledge about the concept of building deconstruction; however, it was determined that their knowledge and implementation levels on the concepts are very low. It was understood that they had knowledge about concepts such as recovery, disassembly and demolition, but their way of obtaining information was not sufficient. In this context, it is recommended to carry out studies such as providing training on the concept, opening certificate programs and publishing guide books in order to increase the knowledge and implementation experience of companies. In addition, making legal arrangements regarding building deconstruction will help the urban transformation processes to be realized faster and with less environmental impact.

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A Critical Analysis of Housing Affordability Literature: Turkish Housing Experience

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Abstract: *Measuring housing affordability is a key challenge for most communities. Housing affordability has often been described as housing expenditures-to-income ratio. But, in the housing affordability literature, "housing expenditures" still open to discussion. This article introduces the concept of "lifetime affordability" to describe the affordability of households during the housing life cycle period considering the complexity of determining realistic housing affordability. The concept will be explained through the Turkish housing experience.*

Keywords: *Affordability, housing policy, lifetime affordability.*

Konut Ödenebilirliği Literatürünün Eleştirel Bir Analizi: Türk Konut Deneyimi

Özet*: Konut ödenebilirliğinin ölçülmesi çoğu topluluk için kilit bir zorluktur. Konutlarda ödenebilirlik genellikle hanehalkı gelirlerinin konut giderlerine oranı olarak tanımlanmaktadır. Bununla birlikte, ödenebilirlik literatüründe "konut giderleri" hala tartışılmaktadır. Bu makale, konutun yaşam ömründe, gerçekçi konut ödenebilirliğinin belirlenmesinin karmaşıklığını da göz önüne alarak, hanehalklarının ödenebilirliğini tanımlamak için "yaşam boyu ödenebilirlik" kavramını tanıtmayı amaçlamaktadır. Bu kavram Türk konut deneyimi ile ele alınmaktadır.*

Anahtar Kelimeler: *Ödenebilirlik, konut politikası, yaşam boyu ödenebilirlik.*

1. INTRODUCTION

In recent years, the housing affordability problem has become serious all over the world, especially in developing countries. Although housing affordability is perceived as the relationship between housing and its users, risks regarding housing affordability problems are borne by society. The problem has the capacity to make it more difficult to manage investments. Alternatively stated, housing affordability affects not only households but also the country's economy negatively. For these reasons, a reliable and efficient measure of housing affordability is so crucial for decision and policymakers.

It is possible to define the affordability as housing expenditures-to-income ratio. However, in the housing affordability literature, "housing expenditures" are not clearly expressed and are considered as a short-term indicator. In other words, only the initial cost of the housing is considered. The housing maintenance and operational costs are generally ignored during a housing life span. Since there is no long-term indicator, lifetime affordability cannot be determined. This article aims to discuss "housing expenditures" considering the complexity of determining realistic housing affordability and to introduce the concept of lifetime housing affordability through the Turkish housing experience. In the article, firstly housing affordability

literature is analyzed and discussed the shortcomings of the literature. Then, the concept of lifetime affordability is tried to explain through the Turkish housing experience.

2. HOUSING AFFORDABILITY

Housing as a fulfillment of the sheltering need has been one of the fundamental rights of an individual throughout civilization history. Besides being the basic human rights, it is an obvious commodity in the market due to the fact that it has some features (durability, immobility, *etc*.) and many functions for the community (shelter, investment/consumption good, *etc*.).

The public sector is an important actor in housing markets making decisions (*i.e.,* location, target population, new housing development) that is important for the housing sector. Therefore, changes most of the time in economic (unemployment, the distribution of wealth, homelessness, housing quality, unemployment, and housing affordability) affect the housing market [6]. Positive developments in the economy have influenced the demand for property ownership instead of renting. However, despite the increasing housing needs since the industrial revolution, a limited housing supply, increasing house prices, *etc*, have prevented households, especially for the lower-income groups, from becoming homeowners. In this context, housing affordability is gaining increasing importance in solving the problem.

The terms *"affordable housing"* or *"housing affordability"* has been popularized in the past two decades and has changed the *"housing need"* at the center of the discussion on providing adequate housing for all [40, 49]. It may be that the reason for this popularity gaining is that in many countries more "market-oriented reforms" in the housing sector are being accepted [11]. As a result, increased concerns about rising levels of *"homelessness", "housing costs"*, *"difficulties in accessing to credit"*, *"mortgage defaults"* have brought housing affordability to the center of housing policy discourse since the early 1990s [6, 13, 24, 49].

The literature on housing affordability is quite large. Ndubueze [28] states housing affordability simply the ability to afford to house. According to a very general definition of housing affordability in literature, housing is accepted as affordable if "*the housing cost is less than or equal to 30% of gross income"* [3]. Maclennan & Williams [24] explains that *"Affordability is concerned with securing some given standard of housing at a price or a rent, which does not impose, in the eyes of government an unreasonable burden on household incomes."*

Stone [38] describes affordability as a difficulty for cost-balancing under income limits for households. He also states as *"an expression of the social and material experiences of people constituted as households, concerning their housing situations"* [38]. Gan and Hill [15] define affordability as "*the ratio of median house price to median income"*. Milligan *et al*. [25] explain that affordable housing is designed usually to *"meet the needs of households whose incomes are not enough to let them access convenient housing in the market without assistance".* According to Hancock [17] who evaluates from another angle, affordability is *"any rent would be affordable if leaves the consumer with socially acceptable standards of both housing and non-housing consumption after rent is paid"*. Bramley [5] describes affordability as; *"Households should be able to occupy housing that meets well-established social sector norms of adequacy given household type and size at a net rent which leaves them enough income to live on without falling below some poverty standard".* However, more inclusive housing affordability definition is that; *"Affordable housing is housing that is appropriate for the needs of a range of low to moderate-income households and priced so that low and moderate incomes are able to meet their other essential basic living costs"* [52].

2.1. Measurement Methods of Housing Affordability

Affordability in housing policy has become more and more important every day. However, there is no consensus in terms of measuring affordability in the literature. Measurement of housing affordability and

problem-related to housing date back to the 19th-century studies. In the 19th-century, Engel & Schwabe studied *"households' budget and affordability"*. They find its expression as *"one week's wage for one month's rent"* [37]. Later, this term was often used in the United States [30]. In 1912, Kengott suggested for housing rent *"at least twenty percent of the earnings of the husband in the family"* [20]. The adage of a "one week's wage ..." used in the 19th century, began to change towards the end of the 20thcentury. As a result of urban developments in the 20th-century, the price to income ratio was used instead of the adage of a *"one week's wage ..."*. Proposed rate corresponds to approximately 25% or 30% of income [2, 18, 38]. These ratio assumptions are based on grossly generalized assumptions without specifying which households were included in the average. After the 1980s, affordability was associated with economic-based problems experienced by households [7, 16, 17, 23, 49]. The ratio of housing expenses to income has been changed at different times according to different institutions. In the 1930s, the federal housing program started by identifying a threshold of 20 percent of income to be spent on rent. Then, the threshold enhanced to 25 percent in the 1970s. Since the 1980s, the standard threshold has been 30 percent of income [26]. Kutty [21] states:

> "*Over time, thresholds of the housing cost-to-income ratio have been set at 25 percent, 30 percent, 40 percent, and 50 per cent. In the USA, the Housing and Community Development Act of 1974 set rents for federal rental housing assistance programs at 25 percent of income. The Omnibus Budget Reconciliation Act of 1981 increased this to 30 percent. One of these criteria was a housing cost burden in excess of 50 percent of income. The preference rules were published in 1988 (Office of the Federal Register). Households exceeding these cost burdens are identified as having an affordability problem"* [21].

3. THE CRITICISM OF AFFORDABILITY LITERATURE

The affordability of housing is important for researchers and policymakers in many countries. It is also a multidimensional issue and should be tackled with many problems that are *"the distribution of income, the ability of households to borrow, public policies affecting housing markets, conditions affecting the supply of new or refurbished housing, and the choices that people make about how much housing to consume relative to other goods"* [33]. Although this multidimensional situation makes it hard to describe and measure it, housing affordability is generally described as housing expenditures-to-income ratio. However, in the affordability literature, *"housing expenditures"* still open to discussion. On the one hand, while, according to Bogdon & Can [4] and Linneman & Megbolugbe [23], housing expenditures are defined as only housing cost, in many countries around the world measuring of housing affordability has conventionally been based upon the mortgage repayment capacity. For example, the U.S. EPA (Environmental Protection Agency) states that housing is accepted as affordable if the mortgage repayment constitutes 30 percent or less of household income. In the affordability literature, this is a commonly used method [4, 8, 13, 15, 23], However, this method does not provide accurate information about the housing total cost to the buyer [36].

On the other hand, *"housing expenditures"* are not based on independent cost information [14, 29]. That is, while housing expenditures are being calculated, it is overlooked that each housing has household consumption patterns. Calculations are based on average housing expenses. The problem is a cursory *"broad-brush"* calculation that does not calculate all the costs of the homeownership. Hulchanski [18] comments on this problem as follows.

> *"There is no escaping the fact that household consumption patterns and the means by which households meet their needs are as diverse as the individual humans and their life situations who comprise these households"* [18].

Chaplin and Freeman [9] supported Hulchanski.

> *"A single ratio is not appropriate for all households, for housing and non-housing costs vary by household type. Furthermore, the ratio does not distinguish between households with very different income levels. A single ratio does not account for regional variation in housing and non-housing costs"* [9].

Stone [38] discusses that the method ignores the household size variety on most criteria, so for families with children and large households' affordability measurement is not very realistic and Mimura [26] states that the current measurement method of the housing affordability is not based on the real economic challenges facing lower-income groups.

4. HOUSING AFFORDABILITY IN TURKEY

4.1. Overview of Turkish Housing Experience

The provision of affordable housing for all segments of society is one of the most important problems facing developing countries in particular. Like the other developing countries, it is a priority to Turkey. With the continuous rise of demand for housing in urban areas, it is worthwhile to discuss producing affordable housing for society.

In Turkey, after the industrialization movement, the first signs of squatter housing began to be observed. With the outbreak of the Second World War, while industrial activity slowed down, illegal construction increased uncontrollably [10]. However, the possibility of entering the Second World War slowed down housing production. This tendency in the economy has led to housing becoming a scarce substance throughout the country. Besides, high rents for housing have become a problem during the Second World War, even if the government introduced a law to amend housing rents, the effects continued into the 1960s [53]. Between 1923-1950, the government did not make any improvements to housing policies to provide housing. Another change in the housing sector, between the years 1927-1950 is the shift from detached houses to apartments. The apartments were located in the only capital city of Istanbul during the Ottoman Empire period. In 1927, there were 1441 apartments and 89762 houses in İstanbul. Then the number of these houses was 102361, and in 1950, the number of apartments reached 5384 [19]. The main reason for the increase in apartment blocks is *"the unaffordability of individual housing provision for households"* [1].

After the 1950s, the government began designing housing policies, as well as providing housing and financing. Housing demand and squatter housing problems are also beginning to appear in government programs. Besides, the programs included information on affordable housing. However, most of these initiatives have failed. In Turkey, the housing problem has always been qualitative and quantitative [46]. Nevertheless, these problems were discussed only as a quantitative problem for governments [1]. The main reasons underlying the housing problem are population growth and rural migration.

After the industrialization movement, it began a massive migration from rural to urban areas. Housing problems have emerged over time because of this massive migration. For the housing problem, each government began to produce its solution. However, these solutions were inconclusive because they did not come to the source of the problem. Rather than designing policies to supply housing for lower-income groups, the governments allowed the construction of squatter [41]. Therefore, the housing needs of the growing population can cause irregular settlements. These settlements refer to the low-cost building.

However, the uncontrolled settlements were orderless, unhealthy, lack of infrastructure and risky in terms of life.

In 1980, the *"National Housing Policy"* was constituted by the Council of Ministers to provide housing for the people who were not homeowners. As a consequence of this policy, in 1981, the first mass housing lawNo.2487 was enacted. Between 750 and 1000, units of mass housing were built. This housing was financed by the state. Afterwards, the second mass housing law numbered 2985was enacted in1984.In addition to the law, the Housing Development Administration (TOKİ) was established. TOKI's corporate duties are to provide housing that is suitable for those who do not have the ability to pay in market conditions. Between 1983 and 1988, a number of laws concerning the transformation of squatter houses enacted. With these laws, the squatter houses were made legal [35].

The Turkish policymakers have begun to discuss this issue after 2000 within the framework of urban transformation. In 2002, *"open up to the world"* and *"become fully integrated into the global economic system"* are proclaimed in the government action plan. This action plan caused the urban transformation to be taken on the agenda. The aim of urban transformation is creating more attractive and competitive urban centres. Then, according to the Government program the Gecekondu (squatter housing) Transformation Projects were put into action with the aim of preventing "prevent unhealthy and ugly urbanization" in 2004. These projects have been started by the Housing Development Administration of Turkey (TOKİ) in collaboration with the local governments. In consequence, the number of housing has increased dramatically. This method was first perceived as producing affordable housing on their land by municipalities. However, the law contributed to expanding the authority of *"the metropolitan municipalities"* over *"the district municipalities"*.

Afterward, interventions to ensure the affordability of rental houses began to increase. The government has put restrictions on rent increases. To this end, to keep the rent of the housings under control, the state set a maximum rent increase percentage in 2000. After 2000, rent increases can be made according to *"the producer price index during the preceding 12 months"* at most. After 2003, the authorities given to TOKİ have increased considerably. With these authorities, TOKI has become the sole authority in all subjects on the built environment. TOKI has been criticized for not taking into account the user characteristics and environmental factors in producing housing. Besides inadequate payment, lack of arrangements for tenants and some shortcomings in an arrangement for homeowners have also been criticized [47]. TOKI has become an important actor in the housing sector in a short period. TOKI adopts the following method that they gain income from high-income projects and use them in housing construction for the middle- and low-income group. Arrangements were made in the methods of housing financing. The housing mortgage system was presented as a solution offered. However, this method was not a solution to the problem of affordability of low-income groups. Instead of this, this method facilitated housing acquisition of upper-income groups.

In the 9th five-year development plan (2007 - 2013), housing was not considered comprehensively. While, in this plan, financial resources and models for housing has been increasing, it does not offer a solution to the housing problem of lower-income groups. When these conditions were examined, while housing was perceived as an investment good for higher-income groups, it became a growing problem for lower-income groups.

In 2003, the Justice and Development Party aimed to find solutions to the housing problem of lower-income groups, beginning with the housing production and urban transformation program. However, the rate of households in 2000 was 68%, in 2007, this ratio dropped to 60% [45]. As can be understood from these ratios, the houses that are produced did not reach to people who did not have housing. The households used

housing as an investment tool. Therefore, these houses have not been a solution to the affordability problem of the lower-income group [1]. Among the identified objectives of 2023, there is an emphasis on urban transformation regarding housing. However, urban transformation activities have not gone beyond profit-oriented activities. Urban transformation, presented as a solution, cannot contribute to solving the affordability problem of lower-income groups. Although housing affordability problem is very critical for Turkey, the problem could not be managed properly.

4.2. In terms of Life-Time Housing Affordability

Although there is no consensus definition for the term, according to Gan and Hill [15], in the literature, at least three different ways of affordability are commonly encountered. They are respectively income affordability, purchase affordability, and repayment affordability. In its simplest term, affordability of housing is denoted by the house price to income ratio or the rent to income ratio known as income affordability; more sophisticated terms are repayment affordability, purchase affordability. Firstly, income affordability is expressed only by a mathematical percentage that would bring out less accurate results as discussed by Stone [38], Gan & Hill [15], (2009) and Thalmann [42]. According to this type, the affordability is primarily the problem of income inadequacy and it is desirable that the parameters are not overcrowded in the calculations in order not to become unnecessarily complex [42]. If the housing rent or expenditure is less than the household income, that housing could be considered as affordable. In this approach, the ratio of the average rent to income includes hedonic price estimates for various housing attributes, this leads to the difference between actual affordability and apparent affordability. This approach can be difficult to implement due to the luxury definitions depending on the individual. Secondly, purchase affordability considers whether a household can borrow enough funds to purchase a dwelling of the appropriate size and minimum physical and sanitary standards. In this type of affordability, first-time homebuyers are considered as the target group [39], and it is most commonly expressed by the relationship between housing price and household income [50]. Then lastly, repayment affordability considers the burden imposed on a household of repaying the mortgage. This approach focuses on the relationship between repaying the mortgage and household income. Repayment affordability does not indicate the true cost of housing at the present-state [34] and often consider factors such as loan-to-value ratio and the down payment [22]. When analysing all three types of affordability; since housing standards change from country-to-country, the ratios are the same, and locality is less meaningful. Current methods tend to target initial cost or rent of housing which can have unintended effects and omit the other housing costs over incurred in its life cycle period. These methods have not been a real indicator of the total cost for the buyer, so lifetime affordability remains uncertain. In other words, the housing which initially appears affordable after a while may not be affordable when the life cycle cost has been calculated due to energy costs, hot water costs etc. Therefore, long-term policy perspectives are required to ensure actual housing affordability. From this point of view, a new type of affordability has been added as “lifetime affordability”. This method considers not only the initial cost or rent of the housing but also the total cost incurred in housing lifecycle periods such as operational, maintenance and disposal costs.

In many countries around the World, measuring of housing affordability has conventionally been based upon the mortgage repayment capacity or price-to-income ratio. According to the U.S. EPA (Environmental Protection Agency), it is generally affordable housing, if it constitutes 30% or less of household income. This affordability measuring method is the most common in many countries around the World. Besides, in Turkey, this method is widely used [31]. However, this method does not provide any accurate information about the total costs. A single ratio is not enough to determine housing affordability for all households. Moreover, the ratio does not offer differences between households with different income levels. It also does not consider regional differences.

At end of 2014, Turkey's population is about 77.7 million inhabitants. In 2014, the rate of annual population growth in Turkey was 13.3 per-thousand [44]. The population of the country continues to increase and to urbanize. A great number of houses are built every year in Turkey. Most of them are composed of mass houses. At first, the housing may seem initially affordable when evaluated according to the price-to-income ratio. However, while evaluating their life cycle periods, they are not affordable for especially lower-income groups. In order to have affordable housing in Turkey, it is required to have the following conditions: *"the maximum income level cannot exceed to 3200 ₺"* or who have a "*Green Car*d" or "*benefiting from the Social Aid and Solidarity Encouragement Fund*", or *"benefiting from the Social Aid and Solidarity Encouragement Fund*" or "*not having been dependent on any one of the social security institutions*" or "*receive a salary within the meaning of the Law No.2022205*" or [43]. According to the definition, the presence of households with no income should also be considered in these housing. How can this ratio be applied to people who have no income? The problem is a cursory 'broad-brush' calculation that does not calculate all the costs of the homeownership. The price-income ratio often used 30% which has been previously set at 25 percent, 30 percent, 40 percent, and 50 percent by different institutions does not provide information on housing affordability.

In Turkey, housing affordability measurement studies are in the tendency to target housing initial costs. However, it is able to produce undesirable and unexpected problem in the long term. In housing projects, since commonly only housing initial cost is considered and the housing maintenance and operating costs are not taken into account, the housing producing after a while cannot be affordable. Besides, due to the increase in the share of housing expenses in household income, the person would have to allocate less money for healthcare, food and other expenses. It can damage society. Generally, in the early stage of the construction process, the costs including heating, electricity, water utilities *etc.* are not taken into consideration. Therefore, lifecycle cost and energy demand that belong to that housing are unclear. In the literature, it is possibly seen that the initial cost has a lower rate than the housing operational and maintenance costs in the total building life-cycle cost [27, 32, 48, 51].

A typical household must allocate a large portion of the monthly income to the operating costs of the housing such as electricity, heating and water [12]. For this reason, the operation and maintenance costs that occur during the building life cycle must be considered in the calculation of housing affordability. Therefore, in developing countries especially Turkey, housing options that appeal to different segments, integrated with life cycle costing have been needed. To ensure the lifetime affordability, long-term policy perspectives that are inclusive, systematic are required. For each housing, it is necessary to establish a system in which the housing can assess the costs incurred in its lifetime. In the housing affordability literature, it is necessary to discuss "Lifetime affordability" taking into consideration the costs specific to each housing.

Table 1. *Studies on life cycle costing and their percentages*

Author(s) (year)	Location	Lifespan (years) (assumed)	Initial cost (as % of the cost of lifecycle (assumed)	Cost of operational and maintenance (as % of lifecycle cost) (assumed)
Mithraratne & Vale (2004)	NA	100	42%	58%
Ive (2006)	UK	20	6%	94%
Wong *et al.* (2010)	Malaysia	60	19%	81%
Pellegrini-Masini *et al.* (2010)	NA	25	16%	84%
Kshirsagar *et al.* (2010)	NA	38	12%	88%
Tuhus-Dubrow & Krarti (2010)	US	60	34%	66%
Wang *et al.* (2014)	NA	30	31%	69%

5. CONCLUSION

The provision of affordable housing is an unanswered issue in many countries. This problem is a major challenge, particularly in developing countries. Like the other developing countries, it is a priority to Turkey. Turkey has experienced dynamic urbanization, especially during the last five decades that have increased demand significantly in urban areas. Increasing demand for housing in urban areas provides to discuss the opportunities of affordable housing. However, the problem could not be managed properly. The underlying causes of this are as followed.

Firstly, there no exist affordability housing policies regarding the institutional dimension of the housing affordability; Housing affordability has never been considered in a comprehensive manner and as a priority issue in Turkish housing policy. Although the construction sector was seen as a pioneer of economic growth in Turkey, housing production was supported without awareness as a problem of housing affordability. Besides, the number of studies that draw attention to this issue is quite limited in Turkey. Housing affordability should be an inevitable part of Turkish housing policies and addressed urgently. It is necessary to establish a comprehensive housing policy in order to develop access to more affordable, more efficient and quality housing.

Secondly, the housing affordability evaluates essentially as a short-run indicator and the ratio approach measurement can be used. Predominantly, previous research on housing affordability has concentrated on the costs of accessing housing *i.e.,* housing rent, housing purchase cost, mortgage repayment. Other ongoing costs *i.e.,* water, energy, and other and utility costs, housing maintenance costs tend to be omitted in the affordability debate. This method is not a real indicator of the total cost for the buyer, so lifetime affordability remains uncertain. Affordability issue could not be addressed in isolation from "*lifetime affordability*".

A third issue is directly associated with the target of housing expenditure. In a small number of studies that housing expenditures are calculated, the calculations are based on average housing expenses. The problem is a cursory *"broad-brush"* calculation that does not calculate all the costs of the homeownership. A

uniform housing expenditure calculation for the whole country ignoring local differences in household, housing conditions and household consumption patterns is doomed to be unsuccessful to achieve lifetime affordability. This calculation could be designed with respect to these differences.

Systematic, detailed, and comprehensive methods and studies integrated with the life cycle are required to solve this problem properly. Long-term policy perspectives are required to ensure lifetime housing affordability. It is necessary to discuss "Lifetime affordability" taking into consideration the costs specific to each housing, not a single ratio.

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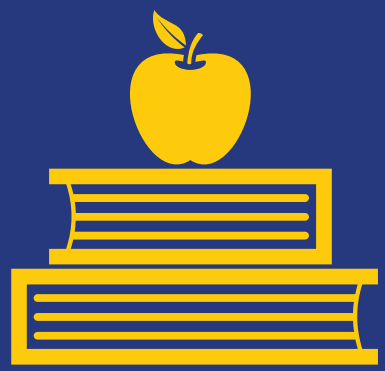

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