SPATIAL, SOCIAL AND ENVIRONMENTAL EFFECTS OF FORCED DISPLACEMENT DUE TO DAM CONSTRUCTION: THE CASE OF HASANKEYF

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Abstract
To meet the growing power and irrigation needs in the world and Turkey, to prevent terrorism, and due to sovereignty concerns on water management, recently dams have been frequently built, and the locations of villages, towns or cities within the areas covered by the dams built or being built are changing. Spatial changes made for compulsory reasons reveal many socio-economic, cultural and environmental problems and related discussions. This study aims to address the social, spatial and environmental impacts of the people of Hasankeyf, who have been living in thousands of caves and historical artifacts for thousands of years, as a result of their forced migration to the New Hasankeyf campus due to the Ilısu Dam and hydroelectric power plant built as a result of a public policy. In this field study, an interview were realized with 214 family members selecting randomly among 734 families who moved to New Hasankeyf, and the findings were obtained via this study were interpreted by making descriptive and relational analyzes. From the data obtained; It was determined that the families who settled in New Hasankeyf were against the dam since the beginning of the project, they were not consulted for the dam construction and the new campus, they lost their income due to the damaging of tourism sector, the destruction of agricultural areas.
Keywords: Forced Migration, Spatial and Environmental Changes, Ilısu Dam, Hasankeyf

BARAJ YAPIMI NEDENİYLE YAPILAN ZORUNLU YER DEĞİŞTİRMELERİN MEKÂNSAL, TOPLUMSAL VE ÇEVRESEL ETKİLERİ: HASANKEYF ÖRNEĞİ

Özet
Dünyada ve Türkiye'de artan enerji ve tarımsal sulama ihtiyacının karşılanması, terörün önlenmesi, su yönetimi üzerindeki egemenlik kaygıları nedeniyle son dönemlerde sıklıkla barajlar yapılmakta ve yapılan ya da yapılmakta olan barajların kapsadığı alanların içinde kalan köy, kasaba veya kentlerin yerleri değişmektedir. Zorunlu nedenlerle yapılan mekan değişiklilerinde sosyo-ekonomik, kültürel ve çevresel birçok

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sorun ve buna bağlı tartışmalar ortaya çıkmaktadır. İşte bu çalışma, binlerce mağara ve tarihi eser içinde bin yıllardır yaşamını sürdüren Hasankeyflilerin, bir kamu politikasının sonucu olarak yapılan Ilısu Barajı ve HES nedeniyle, Yeni Hasankeyf yerleşkesine zorunlu göçleri sonucunda ortaya çıkan toplumsal, mekânsal ve çevresel etkileri ela almayı amaçlamıştır. Bu bağlamda yapılan saha araştırmasında Yeni Hasankeyf'e taşınan 734 kişilik aile içinden tesadüfi yöntemle seçilen 214 aileye mensup bireyle görüşülmüş, elde edilen bulguların betimsel istatistikleri ve ilişkisel analizleri yapılarak yorumlanmıştır. Elde edilen verilerden; Yeni Hasankeyf'e yerleşen ailelerin projenin başlangıcından itibaren baraja karşı oldukları, baraj yapımı ve yeni yerleşke için kendilerine danışılmadığı, turizmin azalması ve tarımsal alanların yok olması nedeniyle gelir kaybı yaşadıkları, zorunlu göçler nedeniyle kültürel değerlerin kaybolduğunu değerlendirdikleri tespit edilmiştir. Ayrıca bulguların yapılan ilişkisel analizinde de anlamlı farklılıklar ortaya çıkmıştır.
Anahtar Kelimeler: Zorunlu göç, Mekânsal ve Çevresel değişimler, Ilısu Barajı, Hasankeyf

INTRODUCTION

Migration, which is the general name for spatial changes, has emerged individually or massively, compulsively or voluntarily throughout the history (Faist, 2003; Tekeli ve Erder, 1978). Immigrants sometimes voluntarily move to work in better economic conditions and to get better education. Sometimes, they are forced to migrate due to wars, conflicts, human rights violations, natural disasters, savings about public investments (such as urban infrastructure renewal and development, transportation, natural resource extraction and dam projects) (Bakırcı, 2002: 57). It has been stated that approximately 50.8 million people were internally displaced due to force majeure at the end of 2019, (Internal Displacement Monitoring Center [IDMC], 2020). It has been suggested that approximately 70% of these forced displacements occur due to dams, while the rest of them displaced due to war, civil conflict, natural disasters and other public investments (Stanley, 2004: 8). The second half of the twentieth century is the period when the dams, dating back 5 thousand years, were mostly built. On the one hand, the global population growth and increasing electricity demand, on the other hand, the economic development goals of the countries due to the urgent need to reduce greenhouse gas

emissions have revealed an unprecedented increase in both scale and scope in the construction of dams and hydroelectric power plants (HEPP) in recent years (Poff ve Hart, 2002: 59; BM, 2012). Again, these investments made during this period became the most important public policy targets of governments in many parts of the world, especially in China, Sub-Saharan Africa and South Asia (Zarfl ve diğ. 2015: 162). There are many positive and negative effects of these constantly increasing investments on societies. Dam and HEPP investments provide socio-economic benefits at national or regional level such as generating electricity, providing flood control and improving agricultural irrigation. However, the social networks of those forced to migrate, especially their livelihoods, are changing and they face socio-economic, spatial, environmental and ecological effects. (Rosenberg ve diğ., 1995; Tilt ve Gerkey, 2016; Walker ve diğ., 2004; Si, 1993; Anderson ve diğ., 2006). In sociological term, one of the most important effects is the forced displacement of local communities (Terminski, 2013; Thomas ve Adams, 1999; World Comission on Dams [WCD], 2000; Richter ve diğ., 2010).

Dam construction in Turkey has been developed as a public policy since the 1930s. In the last 50 years, 861 dams and 681 HEPP projects have been carried out (tarimorman.gov.tr, 2020; DSİ, 2020). Residents of many settlements that remained within the basin due to the dams were forcibly displaced and migrated to newly created settlements (Bakırcı, 2002: 378). As a result of these migrations, many spatial, administrative, socio-economic and environmental problems have arisen. Similar results were encountered in the transportation of Hasankeyf, a historical and cultural city within the area covered by the Ilısu

Dam and HEPP[**], whose project works were initiated in 1954 and the construction of which was initiated at the beginning of 2008. Here, this study aims to analyze how the forced displacements caused by the dam have changed the local, ecological, socio-economic, cultural and environmental system and what their effects are, through the example of Hasankeyf. Hasankeyf, which has been in existence for thousands of years, has been the capital of various civilizations, has an important historical and cultural heritage, and the agriculture, animal husbandry and fishing sector has also existed in the fertile lands of the Tigris River for years. All these important factors played a critical role in choosing the city as a study subject. The main expectation of the study is that "public policies based on the forced displacement caused by the dam may reduce the socio-economic and cultural resilience of the indigenous people, as well as cause ecological and environmental damage". The study is based on the basic question "What are the spatial-administrative, socio-economic and environmental effects of dam construction". It is hoped that the determinations to be made and the findings to be obtained will guide the future public policies regarding the dams.

1. Sustainable Development, Dam Constructions and Mandatory Spatial Changes

One of the main goals of sustainable development is to meet renewable energy needs. The most important investment in energy supply in the last century is the construction of dams and HEPP investments accordingly. Dams are important structures that increase the living standards of people staying in the areas where dams were built (Rosenberg ve diğ., 1995; Berkün, 2007: 14; Bozkuş, 2004:

[**] The name of the Ilısu Dam has been changed to Veysel Eroğlu Dam on 12 May 2020. However, it has continued to be named as Ilısu Dam and HEPP in this article because for years it has remained as the Ilisu Dam Project in the memories.

3336). On the other hand, dams can cause many negative effects due to their environmental and climatic effects disrupting the ecological balance (Anderson, Freeman & Pringle, 2006; Sever and Kalın, 2010). In addition, with the construction of the dam, there is a significant amount of forced migration from settlements under the reservoir to other regions (Terminski, 2013; WCD, 2000; Richter et al., 2010; Thomas ve Adams, 1999;).

In projects supported by the World Bank, approximately 70% of development-based involuntary displacement and resettlement occur every year due to dam projects, and approximately 15 million people are displaced annually due to dam constructions (Picciotto, 2013: 248; Terminski, 2013: 11). Although the effects of dams on communities and regions are different (Huang, Lin, Li & Ning, 2018: 3), it has been stated that approximately 40-80 million people were displaced from 1950 to 2000 (Stanley, 2004: 8-9; Goodland, 2010; IDMC, 2001; WCD, 2000). It's stated that, approximately 350,000 people forced to migrate due to 198 large-scale dam made since 2005, in Turkey. (Şatıroğlu, 2012: 54). In today's world forced migration is heavily experienced in China, Vietnam, Egypt, Pakistan, Brazil, the USA and Turkey. In these countries; discrimination, exclusion and pressure may arise in the allocation of public resources, services and opportunities, especially in expropriation procedures, due to forced displacement (Stanley, 2004: 8-9; Parlak, 2007: 67). In addition, forced migration causes socio-economic and psychological problems in these countries. (Placier ve Hall, 2000). For this reason, organizations such as the World Bank (World Bank, WB), the Organization for Economic Development and Cooperation (OECD) and the United Nations (UN), which provide loans to dams built in the world and in our country, impose restrictions on dam constructions and require following of various principles (Kitchen ve Ronayne, 2002: 106; Kälin, 2008).

2. General Information on Research Area and Settlement Process in New Hasankeyf

In this section, general characteristics of Hasankeyf, the largest settlement unit affected by the Ilısu Dam and HEPP, which was planned in 1954 and started to be built since 2008, are explained.

3. General Features of Hasankeyf and Ilısu Dam

Hasankeyf, located in the center of Mesopotamia, is an ancient city which hosted many civilizations such as Byzantines, Ottomans, Artukids, Ayyubils, Assyrians, Urartians, Marwanians and Arabs (Bayazit, 2015: 73-74). Hasankeyf, known as "Kipas", "Cehpa", "Ciphas" in Roman sources and "Hasın Kayfa (Rock Castle)", "Hısn Keyba", "Hısn Kayfa", "Hısnı Keyfa" in other sources. It has gained a reputation for being the only city that can preserve its medieval integrity and having a history dating back to late Assyrian, Urartu and Roman periods 10,000 years ago (Miynat, 2009; Haspolat, 2005; Şener, 2004). The first settlements in the urban sense are M. Ö. It dates back to 1000 years ago (Leedom, 2009). Hasankeyf, which remained in the background in the urban sense until the beginning of the 20th century, was a subdistrict of the town of Gercüş in Mardin in 1926. With the Law No. 3647 dated May 18, 1990, Batman became a province and Hasankeyf gained the status of a district affiliated with it.

Turkey, at the General Conference of UNESCO, which convened in Paris between 17 October-21 November 1972 agreed the "World Convention for the Protection of Cultural and Natural Heritage" and, in its internal legislation, pulled the Cultural and Natural Heritage Protection Act No. 2863 on 23.07. 1983. Thus, Hasankeyf, which was declared a 1st degree site in 1978, was accepted as a "cultural heritage" as per national and international legislation and it was aimed to be left to future generations (Haspolat, 2005: 22).

Ilısu Dam and HEPP, one of the main elements of the GAP (Southeastern Anatolia Project), is one of the largest water projects in the world (Yenigün ve Yüzgül, 2013: 565-566). Within the framework of studies on the development of soil and water resources of the Tigris River has been launched by DSİ (Turkey's State Waterworks Administration) in 1954 and has been launched to cover the many settlements, including Hasankeyf first. Planning and project studies of the dam, which the Minister of Agriculture and Forestry Dr. Bekir Pakdemirli called "70 years dream", started in 1969 and the implementation of the project started in 1988 when it was included in the investment program (tarimorman.gov.tr, 2020). However, since Hasankeyf is on the "cultural heritage" list, local and foreign forces pressed for the dam not to be built. Therefore, the construction of the dam has been suspended for a while. For this reason, with the "Principle Decision on the Protection of Immovable Cultural Property Affected by Dam Sites" numbered 717, which was taken by the High Council for the Protection of Cultural and Natural Heritage and was published in the Official Gazette on October 27, 2006, it was again decided to plan and build dams "outside the protected area". However, it was understood that it is not possible to construct Ilisu Dam outside the protected area, within the framework of the "Resettlement Action Plan", it was deemed appropriate to build the dam after some historical assets in Hasankeyf moved to the new settlement area.

Until 2008, agreements were made with many foreign companies for the Ilisu Dam Project, but these companies withdrew from these agreements, citing the ecological, socio-economic and cultural effects of the Ilisu Dam. When foreign finance companies withdrew from the project, the government continued the project on May 16, 2008 with domestic bank loans (Başkaya ve Türk, 2015: 353) and completed the construction of Ilısu Dam and HEPP in the first quarter

of 2020. This dam is in the 1st place in the world in terms of filling volume, body length and surface volume in Concrete Faced Rock Fill Dam type, it ranks second in terms of volume and fill dam in Turkey, 3rd in terms of storage volume and 4th in terms of installed power (DSİ, 2018). The Ilısu Dam and HEPP, which are built for electrical energy production and have a volume of 10.625,00 million hm3, at 135 m water elevation, consists of 6 turbines. The first of these six tribunes was commissioned on May 19, 2020, and the second on 30.06.2020, and electricity generation started. In addition, with this project, it is aimed to irrigate a total area of 765 thousand decares with modern techniques in the plains of Nusaybin, Cizre, İdil, and Silopi with the waters regulated in the Ilısu Dam and released to the Cizre Dam to be built later. With 1200 MW of installed power and 4.120 GWh / year of energy, it is estimated that the Ilisu Dam and HEPP project will provide $ 412 million per year to the national economy (tarimorman.gov.tr, 2020; Hasankeyf District Governorship, 2020; DSI, 2020).

4. Moving Process and Expropriation

From the Ilısu Dam and HEPP Project; A total of 108 settlements, including 1 district (Hasankeyf), 107 villages and hamlets in the provinces of Mardin, Diyarbakır, Batman, Siirt, and Şırnak in the Southeastern Anatolia Region, were affected. 45 of these settlements were subjected to resettlement, and 63 of these settlements, some of the lands belonging to these settlements were submerged (DSI, 2019: 5-21). In addition, 18 villages and 7 hamlets of Eski Hasankeyf were affected by the construction of the dam. Within the scope of the Ilısu Dam and HEPP Project, work on the New Campus Area and New Cultural Park Area for Hasankeyf started in 2005. With the "urgent expropriation" made by the Ministry of Environment and Urbanization, the expropriation process has been initiated by the Ministry of Environment and Urbanization of the area

(annulled), which was designated as a new settlement with the decision of the Council of Ministers numbered 2006/10642, published in the Official Gazette dated 12 July 2006 and numbered 26226. DSI (State Hydraulic Works Administration) initiated the expropriation process for the submerged places and the Provincial Directorate of Environment and Urbanization for the places out of the water. After the expropriation procedures were completed, a resettlement announcement was made by the Batman Provincial Directorate of Environment and Urbanization in 2008, but no application was made for entitlement. Since 2013, gradual relocation procedures have been initiated by public institutions to public buildings built by TOKI in the New Hasankeyf Campus in 2010. As of this date, DSI, Provincial Directorate of Environment and Urbanization and Hasankeyf District Governorship informed about the relocation and expropriation and made a new resettlement announcement by granting the right to apply again. However, it was determined that more applications than expected were made to this announcement, which was made without determining the conditions for being entitled. Therefore, with the Decree of the Council of Ministers numbered 2015/7590 published in the Official Gazette dated 05.05.2015 and numbered 29346 and the Decree of the Council of Ministers numbered 2016/8857 published in the Official Gazette dated 01.06.2016, the conditions of entitlement were determined and within this scope, Batman Provincial Directorate of Environment and Urbanization Between 21.07.2016 and 19.08.2016, the resettlement announcement was made and 2113 application were accepted. Within this framework, the Local Settlement Commission has determined 728 residences and 137 commercial right owners as a result of examinations and evaluations. For the completed houses, lots were drawn before the notary public on 02 April 2019 and the right holders were determined. The relocations started in August 2019 under the

management of Hasankeyf District Governorship, which also undertakes the inter-institutional coordination, and was completed on February 10, 2020 by providing sufficient personnel and truck support by the DSI 16th Regional Directorate (Hasankeyf District Governorship, 2020; DSI, 2020). After the relocation procedures were completed, it was observed that the Old and New Hasankeyf differed in population and household. According to this; According to 2014 ADNKS data, while there were 3143 people and 315 households in Old Hasankeyf (Başkaya ve Türk, 2015: 353), 757 households and approximately 3500 people were identified in Yeni Hasankeyf as of 2020 (Hasankeyf District Governorship, 2020).

5. Method

In this part of the study, the headings of the research method and model, data collection methods, analysis of the data obtained in the research, the population and sample of the research are included.

5.1. Research Method and Model

Quantitative research method was used for this research. This method is based on quantitative measurements that enable the measurements of variables to be expressed in numbers (Punch, 2011). Descriptive or descriptive research model was used as the research model. What is important in this type of research is to describe the current situation. Therefore, the researcher does not manipulate the independent variables in any way (Can, 2017: 12).

5.2. Data Collection Method Used in the Study and Data Analysis

The questionnaire technique was chosen as the method of data collection and a questionnaire consisting of closed-ended questions was prepared. With this method, it was aimed to obtain data through a list of questions that the participants will answer via directly reading. While preparing the questionnaire, many applied scientific studies on this subject were also used. The

questionnaire consists of multiple choice and five-point likert scale questions. The five-point Likert scale consisted of "strongly disagree, disagree, undecided, agree and strongly agree" options. The questionnaire prepared within this framework was selected among 734 households in Yeni Hasankeyf, 60 from Kültür neighborhood, 50 from Raman district, 54 from Dicle district, 50 from Eyyübi district and applied to a total of 214 family members by determining one person from each household. The surveys were conducted between June and August 2020 with the decision of the Ethics Committee of Batman University dated 07.07.2020 and numbered 2020/03. The scope of the study was limited to Hasankeyf, which is the only city under the dam due to resource and time limitations. The descriptive statistics of the data obtained through the questionnaire were made through the SPSS 24 program. Thus, besides the descriptive statistics of the findings, descriptive and relational analyzes were also made. On the other hand, in order to measure the spatial, environmental and social influence levels of the participants, arithmetic average and proportional frequencies were used as descriptive statistics. Factor analysis was performed for the reliability studies of the data collection tool and the data obtained are shown in the table below:

Table 1. Factor, Reliability and Validity Analysis

Expressions	Environm-ental	Spatial-managerial	Socio-economic
I think the plant species will decrease	,852		
I think the animal (fauna and flora) species will decrease	,825		
It will decrease / decreased the cultivated agricultural areas	,806		
It Affected / will affect fishing negatively	,710		
I would migrate to another city if I had the opportunity	,561		
I am glad to settle in New Hasankeyf		,865	
I am glad to settle in a new house		,845	
I think it will contribute to the development of New Hasankeyf		,668	
Our problems are solved immediately in New Hasankeyf		,647	

My monthly income decreased due to moving to New Hasankeyf			,808
I had to change profession due to moving to New Hasankeyf			,716
The opportunity to live our traditions and customs in New Hasankeyf decreased			,644
I have trouble finding or establishing a job in New Hasankeyf			,619
Variance Description Ratio	31.407	17.954	10.610
Total Variance Disclosure Ratio			59.970
Meaan	3,116	2,730	3,315
Standard Deviation	0,075	0,074	0,069
Cronbach's Alpha	0,833	0,777	0,696
Cronbach's Alpha (Genel)			0,701
Kaiser-Meyer-Olkin(KMO)			,790
Bartlett Testi			0,00
Skewness (çarpıklık)	0,481; 166	0,042; 0,166	-0,622; 0,166
Kurtosis (basıklık)	0,603; 0,331	-1,062; 0,331	-0,135; 0,331

In the factor analysis test made for the first time among the statements above, it was determined that the scale was gathered under three factors explaining 59.970% of the total variance with an eigenvalue greater than 1. This shows us that the factor load is high. In the scale consisting of 24 statements at the beginning, the factor load of 11 statements was determined as low and they were removed from the scale. In later analysis, the scale was handled over 13 statements. The final version of the statements in the scales are; environmental 5, spatial-managerial 4, and socio-economic 4. After factor analysis, Cronbach's Alpha value was calculated as 0.701 for the reliability of the scales. This value is considered to be highly reliable (Güriş ve Astar, 2015: 283). Confirmatory factor analysis was used for validity and it was accepted that there was a relationship between variables as $p = 0.000 < 0.05$ as a result of the Barlett Test. As a result of the test to determine whether the sample size is suitable for factor analysis, the KMO value was calculated as 0.790 and this value is considered to be a very good value (Kalaycı, 2010: 322). Alpha value and sum of explained variance show that the scale is safe and valid. Alpha value and sum of explained variance show that the scale is safe and valid. Kolmogorov-Smirnov test was

applied to determine whether the tests would be parametric or non-parametric in the analyzes performed to analyze the data, and it was checked whether the scale values were significant. It was determined that kurtosis and skewness values were between 2 and -2 on a scale basis. These values show us that the data are distributed normally (George ve Mallery, 2010). Values such as mean and standard deviation, which are among the descriptive statistics, were used in the descriptive analysis of the data. T and ANOVA tests, which are among the parametric tests, were used to determine the significance tests to be applied to the variables.

5.3. Study Population and Sample

The universe of this research consists of people living in Old Hasankeyf and therefore settled in New Hasankeyf. Considering that such a survey will be difficult in terms of time and cost for 108 settlements under the Ilısu Dam, it is limited to Hasankeyf. The sample of the study, on the other hand, consists of 214 women and men over the age of 18 determined based on the lists obtained on the basis of neighborhood among the families settled in 734 residences in New Hasankeyf. The demographic characteristics of this sample group are explained in the table below.

Table 2. Distribution of Participants by Demographic Characteristics (N=214)

Gender	**F**	**%**
Male	104	48,6
Female	110	51,4
Age Categories (İn Years)	**F**	**%**
18- 28	50	23,4
29- 39	67	31,3
40- 50	59	27,6
51- 61	18	8,4
62+	20	9,3
Marital Status	**F**	**%**
Married	117	54,7
Single	58	27,1
Widowed	35	16,4
Divorced	4	1,9

Education Status	**F**	**%**
İlliterate	29	13,6
Primary school graduate	51	23,8
Middle school graduate	39	18,2
High school graduate	66	30,8
Universty or postgraduate graduate	29	13,6
Professions	**F**	**%**
High and middle level officers (bank personnel, district governorship personnel, teacher, nurse etc.)	17	7,9
Minor officer or worker (driver, security officer, municipal cleaning officer, cook etc.)	20	9,3
Self-employment (lawyer, doctor, accountant, etc.)	23	10,7
Tradesman (tailor, hairdresser and barbershop, electrical technician, dowry shop, carpenter, coffee, cafe, restaurant, market or grocery operator etc.)	31	14,5
Temporary professions (daily worker, peddler, marketer, shepherd, farmer, etc.)	11	5,1
Those who are looking for a job but cannot find it	1	0,5
Housewives and those who do not want to work	75	35,1
Other (students and those who do not ındicate a job)	32	14,9
Monthly İncome By Household	**F**	**%**
0-1000	22	10,3
1001-2000	45	21,0
2001-3000	65	30,4
3001-4000	38	17,8
4001- 5000	30	14,0
5001- +	7	3,3
Those Who Do Not Indicate Income	7	3,3

In general, it is known that the participation of women is less in surveys conducted in the field. However, it can be predicted that the number of female participants increased due to the fact that the pollsters were selected especially among women in the study conducted in the Hasankeyf city sample and the said pollsters were able to speak Kurdish, Turkish and Arabic. It is an important detail that more than half of the participants (54.7%) are young people and most of them are married. It was revealed that there were some partially illiterate participants and they were sincerely involved in the interviews. It is understood from the table that the participants included people from all professions and

therefore the income level differs according to the professions. Nevertheless, the fact that approximately one third of the participants declared income below the minimum wage also reveals the economic difficulties during the move.

5.4. Results

Participants were asked for their opinions on whether any institution or organization had been informed before the construction of the Ilisu Dam and HEPP started, and the data obtained are shown in Table 3.

Table 3. Distribution of the Participants according to their Opinions as to whether or not they were informed about the construction of the Ilisu Dam and HEPP(N=214)

Variables	F	%
Yes, notified.	83	38,8
No, no information was given.	131	61,2

According to Table 3, it was revealed that more than half of the participants (61.2%) did not receive any information from any institution or organization. It can be said that 38.8% of the participants were informed to a certain extent by the staff of the District Governorship, Municipality and TOKI.

Table 4. Distribution of the Participants by the Learning Period of the Ilisu Dam and HEPP(N=214)

Variables	F	%
1-4 between years	11	5,1
4-10 between years	61	28,5
11-20 between years	83	38,8
21-35 between years	22	10,3
36-50 between years	17	7,9
51 years and above	20	9,3

The project related to Ilısu Dam and HEPP was started by DSI in 1954 and the construction of the dam was started in 2008. It can be said that a significant portion of the local people (72.4%) of the project completed in 2020 were informed after the dam construction started. It is understood from the table that

very few of the participants (9.3%) were informed at the beginning of the dam project.

Table 5. Distribution of the Participants According to the Source from which They Learned that the Ilısu Dam and HEPP will be Built (N=214)

Variables	F	%
Family	83	38,8
State officials	23	10,7
Social circle	108	50,5

In order to ensure the sustainability of public policies, these policies should be realized with a transparent and participatory approach. For this, it is necessary to inform the local people by policy makers from every stage of development-based policy processes that will affect local people. Although Hasankeyf is the only city subjected to forced displacement due to the construction of the Ilısu Dam and HEPP, it is understood that the local people were not informed in time. It is understood that only 10.7% of the participants were informed by state officials (district governorship, municipality, DSI, imams). All of the rest (89.3%), on the other hand, received information from their family (mother, father, spouse, children, grandfather, grandchild) or social circle (friends, relatives, neighbors, residents of the district, local and national press, coffee shops).

Table 6. Distribution of the Participants According to Their Attitudes towards the Construction of Ilısu Dam and HEPP (N=214)

Variables	F	%
I didn't oppused	9	4,2
I oppused and participating in operational activities	30	14,0
I oppused, but did not participate in the operational activities	175	81,8

When we look at the attitudes of the participants about what they did when they learned that Hasankeyf would be inundated due to the Ilısu Dam and HEPP, it is understood from the table that almost all of them (95.8%) opposed the construction of the dam. In addition, it can be said that 14.0% of the participants

who opposed showed their actions through platforms such as marches, rallies, meetings and social media.

Table 7. Distribution of Participants According to the Expropriation of Properties (N=214)

Variables	F	%
Expropriated	179	83,6
Not expropriated	35	16,4

The majority of the participants (83.6%) benefited from expropriation because they owned one of the real estates such as house, land, garden, office etc. in Old Hasankeyf. It is understood that very few (16.4%) people who did not benefit from expropriation were formed by those who did not meet the criteria for expropriation or were rejected after necessary objections.

Table 8. Distribution of the Participants According to whether they find the Value of the Expropriated Property Reasonable (N=214)

Variables	F	%
I found it reasonable	43	23,4
I did not find it reasonable	136	76,6

It can be said that 23.4% of the places where they are located are satisfied with the expropriation value they have received. However, it is understood that the majority of the participants (76.6%) are not satisfied with the expropriation price.

Table 9. Distribution of Participants Who Find the Expropriation Price Unreasonable According to Their Attitudes (N=136)

Variables	F	%
I did not do anything	72	52,9
I used my legal objection rights by applying to the court	50	36,8
I looked for ways to appeal, but I didn't do anything	14	10,3

The processes followed by the participants who do not accept the expropriation price can be seen in Table 9. When the table was examined, it was understood that more than half of the participants (52.9%) did not raise any legal

objections. It can be said that 36.8% of the participants apply to the court and seek their rights through legal means.

Table 10. Distribution of the Participants as to whether they were consulted about the Dam Construction (N=214)

Variables	F	%
Nobody asked my opinion	196	91,6
Someone asks for my opinion	18	8,4

Almost all of the participants (91.6%) stated that their opinions were not consulted and they were not consulted in any way. On the other hand, 8.4% of the participants stated that journalists, surveyors, engineers, district governorship personnel, someone on behalf of the state and tourists visiting Hasankeyf exchanged views with them at certain periods.

Table 11. Distribution of the Participants According to Their Opinions Regarding Whether the Construction of Ilısu Dam and HEPP is Beneficial (N=214)

Variables	F	%
Beneficial	76	35,5
I have no idea	15	7,0
Not beneficial	123	57,5

The participants were asked whether the construction of Ilısu Dam and HEPP would be beneficial or not, and more than half (57.5%) of the participants stated that the Ilısu Dam would not be useful. 35.5% of the participants stated that they believe that the Ilisu Dam and HEPP will increase income generating areas such as energy, irrigation and tourism and thus will be beneficial.

Table 12. Distribution of Participants According to the Importance They Attach to the Places Under the Dam Lake (N=214)

Variables	F	%
Historical places	86	40,2
Tombs	49	22,9
Houses	27	12,6
Caves	26	12,1
Orchards and fields	26	12,1

40.2% of the participants stated that historical places are the most important loss for them. Other important losses can be stated as tombs (22.9%), houses (12.6%), caves, fields and gardens, respectively.

Table 13. Distribution of Participants by Whether They have Family Members Immigrated Outside the District After Moving to New Hasankeyf (N=214)

Variables	F	%
Yes, some of my family migrated	71	33,2
No, no one from my family migrated	143	66,8

It was revealed that some family members did not want to move to New Hasankeyf due to the forced evacuation of the old Hasankeyf or migrated to other cities due to unemployment etc. Accordingly, it is understood from the table that 33.2% of the participants are immigrants from their families.

Table 14. Distribution of the Participants by Whether Partcipants' Migrant Family Members Are Satisfied with Their Places (N=71)

Variables	F	%
They satisfied from migration	12	16,9
They think of coming back	52	73,2
They regret but don't think to come back	4	5,6
I do not know	3	4,3

Table 14 shows that a significant portion (73.2%) of some family members who do not want to move to New Hasankeyf and migrate to other cities want to return. It is assumed that the reason for this is that the migrants have difficulty in adapting to the places they go after the migration and their economic expectations are not met.

Table 15. Distribution of Participants by Most Important Problems They have been Encountered in New Hasankeyf (N=214)

Variables	F	%
Drinking water problems	78	36,4
Environment and infrastructure problems	38	17,8
Economic problems	35	16,4
Troubled and unstable houses	27	12,6
All of them	16	7,5
Urban transportation problem	15	7,0
Cultural problems	5	2,3

When Table 15 is examined, 36.4% of the participants stated that the most important problem they faced in New Hasankeyf was the lack of drinking water, 17.8% of the problem of environment and infrastructure (construction waste and pollution, unplanned urbanization, lack of green space), 16%, 4 unemployment and other economic (decrease in unemployment, agriculture and animal husbandry, decrease in tourism revenues) problems, 12.6% the houses are not intact (the garden dimensions are not the same, the roofs of the houses are dripping, the houses are attached to each other), 7% the problem of urban transportation (lack of cars, inability to go to the cemetery, lack of shopping areas and bazaar), 2.3% of cultural values (inability to meet relatives, unaccustomed neighbors and flooding of the graves) and 7.5% stated that all the problems mentioned above exist.

Table 16. Distribution of Participants According to Whether They Have Been Helped During and After Moving to New Hasankeyf (N=214)

Variables	F	%
Certain institutions of the state helped	63	29,4
Family, relatives, friends or neighbors helped	18	8,4
The company (the firm that built the houses) helped	6	2,8
Nobody helped	127	59,3

It can be said that more than half of the participants (59.3%) were not helped among the answers given to the question about whether the participants were helped during their move to New Hasankeyf. It is understood from the table that some institutions of the State, especially the District Governorship and TOKİ, and the relatives of the participants helped the rest (40.7%).

Table 17. Distribution of Participants, According to Which Services They Use More in New Hasankeyf, Compared to the Old (N=214)

Variables	F	%
Health	114	53,3
Educatıon	19	8,9
Security	8	3,7
Other	7	3,3
None	66	30,8

Participants were asked which services they used most after moving to New Hasankeyf, and more than half (53.3%) answered this question as health opportunities. 30.8% of the participants stated that no service is doing better than in the past. Therefore, it can be said that there is a decline in public services in New Hasankeyf compared to the past, excluding healthcare services.

Table 18. Distribution of Participants by Whether They Will Migrate to a Place Outside of Hasankeyf if Possible (N=214)

Variables	F	%
I think to migrate	65	30,4
I don't think to migrate	144	67,3
I'm undecided	5	2,3

When Table 18 is examined, it is revealed that although the participants have problems in adapting to New Hasankeyf, only 30.4% of them think to migrate if they have the opportunity. On the other hand, it can be said that the majority of the participants (67.3%) do not think of immigration despite all the problems.

Table 19. T Test Results Regarding the Effects of Ilısu Dam and HEPP according to the Gender of the Participants

Factors	**Gender**	**N**	$\bar{X}$	**S.S.**	**T**	**P**
Spatial-managerial	Male	104	2,8606	1,06228	1,738	,143
	Female	110	2,6068	1,09286		
Environmental	Male	104	3,0462	1,08269	1,071	,372
	Female	110	3,1836	1,13401		
Socio-economic	Male	104	3,1274	1,00424	,746	,562
	Female	110	3,4932	,99221		

*p<0,05

When Table 19 is examined; It has been determined that the effects of Ilısu Dam and HEPP do not make a significant difference according to the gender of the participants in spatial-administrative, environmental and socio-economic scales.

Table 20. T Test Results Regarding the Effects of the Ilısu Dam and HEPP According to the Literacy of the Participants

Factors	Education Status	N	$\bar{x}$	S.S.	T	p
Spatial-managerial	İlliterate	29	3,0431	,65147	1,858	,071
	Literate	185	2,8014	,65166		
Environmental	İlliterate	29	2,9931	,61058	-1,121	,260
	Literate	185	3,1330	,62680		
Socio-economic	İlliterate	29	3,1724	,62358	-,157	,875
	Literate	185	3,1919	,62036		

*p<0,05

When Table 20 is evaluated; It has been determined that the effects of the Ilısu Dam and HEPP in spatial-administrative, environmental and socio-economic scales do not make a significant difference according to the literacy of the participants.

Table 21. ANOVA Test Results Regarding the Effects of Ilısu Dam and HEPP According to the Education Level of the Participants

Factors	Education Status	N	$\bar{x}$	S.S.	F	P	significant difference
Spatial-managerial	Primary school (A)	51	2,8186	,66910	,254	,858	
	Middle school (B)	39	2,8397	,75761			
	High school (C)	66	2,7462	,59565			
	Universty or postgraduate (D)	29	2,8448	,61388			
Environmental	Primary school (A)	51	3,2353	,54215	2,040	,110	
	Middle school (B)	39	3,0667	,65266			
	High school (C)	66	3,1909	,57478			
	Universty or postgraduate (D)	29	2,9103	,79208			
Socio-economic	Primary school (A)	51	3,2696	,58490	3,712	,013	A-D C-D
	Middle school (B)	39	3,1987	,66436			
	High school (C)	66	3,2765	,55145			

	Universty or postgraduate (D)	29	2,8534	,68308

*p<0,05

When we look at the ANOVA test results regarding the comparison of the participants' opinions on the effects of the construction of the Ilısu Dam and HEPP and their education level in Table 21; It is understood that there is a significant difference in socio-economic scale, and no statistically significant difference in spatial-administrative and environmental scales. In order to determine between which education levels there is a significant difference, it was first checked whether the variances were homogeneous or not. According to the homogeneity test, the variances are not homogenous since p <0.05 in spatial-managerial (p = 0.013), environmental (p = 0.000) scales, and since P> 0.05 in socio-economic (p = 0.307) scales. Tukey test was conducted due to the homogeneity of the variance of the socio-economic scale in which a significant difference emerged. When we look at the results of the Tukey test, a significant difference was detected between the primary school (0.41616) and high school (0.42307) graduates and the participants with undergraduate or graduate degrees. From this point of view, it can be said that the effects of Ilısu Dam and HEPP on a socio-economic scale differ according to the education levels of the participants.

Table 22. ANOVA Test Results Regarding the Effects of Ilısu Dam and HEPP according to the Professions of the Participants

Factors	Professions	N	$\bar{X}$	S.S.	F	P	significant difference
Spatial-managerial	High and Middle Level Officers (A)	17	2,926	,597	,477	,793	
	Minor Officer or Worker (B)	20	2,962	,613			
	Self-Employment (C)	23	2,826	,659			
	Temporary Professions (D)	109	2,839	,667			
	Those who do not specify a profession (E)	14	2,803	,581			
	Tradesman (F)	31	2,701	,717			
Environmental	High and Middle Level Officers (A)	17	3,188	,638	2,569	,028	E-F
	Minor Officer or Worker (B)	20	2,970	,574			
	Self-Employment (C)	23	3,147	,618			
	Temporary Professions (D)	109	3,170	,632			
	Those who do not specify a profession (E)	14	3,4000	,489			
	Tradesman (F)	31	2,812	,602			
Socio-economic	High and Middle Level Officers (A)	17	2,691	,681	3,200	,008	D-A F-A
	Minor Officer or Worker (B)	20	3,062	,701			
	Self-Employment (C)	23	3,217	,704			
	Temporary Professions (D)	109	3,224	,577			
	Those who do not specify a profession (E)	14	3,232	,661			
	Tradesman (F)	31	3,379	,464			

*p<0,05

In Table 22, when we look at the ANOVA test results regarding the comparison of the participants' opinions on the effects of the Ilısu Dam and HEPP and their occupation status; There are statistically significant differences between occupational groups in socio-economic and environmental scales. It was determined that there was no statistically significant difference in the spatial-administrative scale. In order to determine between which occupational groups there is a significant difference, it was first checked whether the variances were

homogeneous. According to the homogeneity test, it was understood that the variances were homogeneous since P> 0.05 in spatial-administrative (p = 0.378), environmental (p = 0.809) and socio-economic (p = 0.078) scales. Tukey test was conducted due to the homogeneity of variances in socio-economic and environmental scales where there is a significant difference. When we look at the results of the Tukey test, a significant difference was found between the tradesmen and temporary profession groups and high-level civil servants (p = 0.68786; 0.53359) in socio-economic scale. On the environmental scale, a significant difference (0.58710) was found between those who do not specify a profession and tradesmen. From this point of view, it can be said that the effects of Ilısu Dam and HEPP differentiate according to the professions of the participants in socio-economic and environmental scales.

Table 23. ANOVA Test Results Regarding the Effects of Ilısu Dam and HEPP According to Marital Status of the Participants

Factors	**Marital Status**	**N**	$\bar{X}$	**S.S.**	**F**	**P**	**significant difference**
Spatial-managerial	Married	117	2,792	,689	2,026	,111	
	Single	58	2,762	,570			
	Widowed	35	3,057	,630			
	Divorced	4	3,125	,750			
Environmental	Married	117	3,193	,580	1,831	,143	
	Single	58	3,055	,690			
	Widowed	35	2,994	,614			
	Divorced	4	2,700	,824			
Socio-economic	Married	117	3,239	,637	1,281	,282	
	Single	58	3,155	,584			
	Widowed	35	3,135	,610			
	Divorced	4	2,687	,554			

*p<0,05

When we look at the results of the ANOVA test regarding the comparison of the opinions of the participants on the effects of the Ilısu Dam and HEPP and their

marital status in Table 23; No statistically significant difference was found in terms of the marital status of the participants in spatial-administrative, environmental and socio-economic scales.

Table 24. ANOVA Test Results Regarding the Effects of Ilısu Dam and HEPP According to the Ages of the Participants

Factors	**Age Categories (İnN Years)**		**$\bar{X}$**	**S.S**	**F**	**P**	**significant difference**
Spatial-managerial	18-28	50	2,7000	,60187	2,095	,083	
	29-39	67	2,8769	,62063			
	40-50	59	2,8432	,71453			
	51-61	18	2,6667	,63593			
	62+	20	3,1500	,66094			
Environmental	18-28	50	3,2280	,63247	,864	,486	
	29-39	67	3,1075	,64510			
	40-50	59	3,1051	,60156			
	51-61	18	2,9333	,64717			
	62+	20	3,0400	,59330			
Socio-economic	18-28	50	3,1500	,61859	,228	,922	
	29-39	67	3,2127	,63701			
	40-50	59	3,2331	,60683			
	51-61	18	3,1389	,58926			
	62+	20	3,1250	,67131			

*p<0,05

When we look at the results of the ANOVA test made according to the comparison of the participants' opinions on the effects of the Ilısu Dam and HEPP and their ages in Table 24; It was found that there was no statistically significant difference between the ages of the participants in spatial-administrative, environmental and socio-economic scales.

Table 25. ANOVA Test Results Regarding the Effects of Ilısu Dam and HEPP According to the Income of the Participants

Factors	Monthly Income By Household	N	$\bar{X}$	S.S.	F	P	significant difference
Spatial-managerial	0-1000(A)	22	2,795	,653	,966	,440	
	1001-2000(B)	45	2,855	,649			
	2001-3000(C)	65	2,842	,679			
	3001-4000(D)	38	2,684	,600			
	4001- 5000(E)	30	3,016	,685			
	5001- + (F)	7	3,000	,707			
Environmental	0-1000(A)	22	3,554	,268	3,720	,003	A-B A-C A-D A-E
	1001-2000(B)	45	3,222	,574			
	2001-3000(C)	65	2,975	,663			
	3001-4000(D)	38	3,136	,588			
	4001- 5000(E)	30	3,013	,649			
	5001- + (F)	7	2,885	,747			
Socio-economic	0-1000(A)	22	3,386	,492	2,911	,015	
	1001-2000(B)	45	3,322	,602			
	2001-3000(C)	65	3,157	,598			
	3001-4000(D)	38	3,269	,555			
	4001- 5000(E)	30	2,883	,750			
	5001- + (F)	7	2,892	,659			

*p<0,05

In Table 25, when we look at the ANOVA test results regarding the comparison of the participants' opinions on the effects of the Ilısu Dam and HEPP and their income status; It was revealed that there is a statistically significant difference in socio-economic and environmental scales. On the spatial scale, no statistically significant difference was found. In order to determine between which income levels there is a significant difference, it was first examined whether the variances were homogeneous or not. According to the homogeneity test, it was understood that the variances were homogeneous since P> 0.05 in the spatial-managerial (p = 0.865) scale. Since p <0.05 in environmental (p = 0.000) and socio-economic (p = 0.042) scales, variances were not found to be

homogeneous. Tamhane's T2 test, which is one of the Posthoc tests, was performed because the variances in environmental and socio-economic scales were not homogeneous. When we look at the results of the test, the significant difference is between 0-1000 income groups and 1000-2000.2000-3000.3000-4000.4000-5000 income groups on the environmental scale and these significant differences are in the values of 0.33232; 0.57916; 41770; 54121, respectively. Therefore, it can be said that the impacts of Ilısu Dam and HEPP differ according to the income status on the environmental scale. On the socio-economic scale, because of the variances are not homogeneous, the Posthoc tests Tamhane's T2, Dunnett T3, Games-Hovell, Dunnett C tests were applied, but no significant difference was detected.

DISCUSSION AND FINAL OBSERVATION

Since the second half of the 20th century, the increasing number of dam construction in the world and in Turkey many positive and negative spatial, environmental, administrative and socio-economic impacts has emerged. The concrete event that reveals these effects is the forced spatial changes which occur due to the dam construction. This study has revealed the local, ecological, socio-economic, cultural and environmental changes caused by the submergence of Hasankeyf, the only city displaced by the Ilisu Dam and HEPP construction. Therefore, dam and HEPP constructions for development purposes and expected to meet many expectations, especially energy, are carried out as a government and state policy, but when they cannot meet these expectations, they can create disappointment in the society. This study shows that the local people displaced by the dam and HEPP constructions are exposed to many spatial, social and environmental impacts. Researches conducted in many scales today have revealed similar and different interpretations to our study. Nevertheless, since the process of settling in New Hasankeyf is only in

the last few years, different spatial, administrative, socio-economic and environmental impacts may be encountered in the upcoming periods. In this study, the results of the forced displacement caused by the Ilısu Dam and HEPP can be summarized as follows:

When development investments, which are a public policy, are made in a settlement, local people are most affected by this. Therefore, it is very important to inform the local people to be less affected by the negative consequences of development investments and to get their approval by persuading them about cost-benefit analysis.

However, it can be said that the necessary information about the construction of the Ilısu Dam and HEPP was not given, the local people were not consulted about whether to do it, and the local people learned about the construction of the dam through their family and social circles after the construction process started. It was also revealed that the majority of the participants (81.8%) were against the construction of the dam and although they believed that the construction of the dam was not beneficial (57.5%), they were forced to migrate from their old places.

The World Commission on Dams (WCD, 2000) has also revealed that in many countries around the world, local people are directed to forced migration due to the dams built and their consent is not obtained for these location changes. In addition, it was understood from the data obtained that some of those who were against the construction of the dam were trying to make their voices heard with anti-dam actions.

In Hasankeyf, which was flooded as a result of the construction of the Ilısu Dam and HEPP, social and spatial problems, especially environmental problems, have emerged. In environmental terms, it can be said that some of the historical and cultural assets have been destroyed or damaged, and the plant,

animal and fauna species and cultivated agricultural areas are decreasing. On the other hand, it is also stated that the construction of Ilısu Dam and HEPP will contribute positively to the development and climate change of Hasankeyf and Turkey.

In the social sense, many socio-cultural and especially economic effects have emerged. In the economic sense, especially the fact that tourism activities are not as lively as before, makes it difficult for the participants to start a business and thus cause a decrease in their income. This situation may be a reason for the local people to become even poorer than before. Similarly, Cernea (1988), Huang et al., 2018, Zarfl et al. (2015) and Texier (2013) revealed that resettlement causes the host communities to become unemployed, decrease their income and become even more impoverished than before. On the other hand, McDonald et al. (2008), Wang, Kim, Love, and Kang (2013), Galipeau et al. (2013) revealed that the forcibly displaced people have different job opportunities in the new campus and that there is an increase in their income. Again, Koçyiğit and Emiroğlu (2016) state that the climatic conditions created by the dam construction in the Taşeli Region bring along economic benefits.

When the settlements to be migrated are useful, it reduces the negative effects and facilitates the adaptation process. However, the displaced people were not consulted on where to establish the New Hasankeyf campus, and many problems such as drinking water, environmental and infrastructure problems, employment and income problems, problems of houses, urban transportation and not living their old cultural values have emerged. In addition, it can be said that nobody helped the participants during the relocation, except the partial assistance of the District Governorship and other institutions.

The environmental and spatial impacts that the participants are most concerned about on the submerged parts of the Hasankeyf campus, which is the cradle of

historical and cultural heritage, are primarily the flooding of historical sites and tombs (63.1%), as well as the destruction of houses, caves, orchards and fields. The expropriation process of the properties remaining under the dam started in 2006 and it was revealed that the majority of the property owners (83.6%) living in Hasankeyf benefited from the expropriation. In addition, those who found the expropriation value unreasonable applied to legal remedies.

In the relational analyzes conducted for the purpose of the research, the opinions of the participants consisted of three factors as "environmental services", "spatial-administrative services" and "socio-economic services", and significant differences emerged between demographic characteristics and factors. For example, it was determined that the effects of Ilısu Dam and HEPP differed in the socio-economic factor according to the education levels of the participants, and that significant differentiation emerged between the participants with higher education level and those with primary and high school education levels. Similarly, in terms of the occupations of the participants, the effects of Ilısu Dam and HEPP show a significant difference in the environmental and socio-economic factor and this difference is between the tradesmen and temporary occupational groups and high-level civil servants in the socio-economic scale, and between the occupational groups who do not specify an occupation in the environmental factor. turned out to be. Again, it has been determined that the effects of Ilısu Dam and HEPP show a significant difference in environmental and socio-economic factors in terms of income groups of the participants, and this difference is between the lowest income group and others in the environmental scale.

Based on this, local people, who have been subjected to forced migration due to the construction of dams and HEPPs, should be informed about all kinds of issues from the beginning of the project to the end, and policies should be

implemented around an effective participation mechanism in cooperation with them. Including the United Nations, World Bank, International Dams Commission and other institutions and organizations in the dam constructions and realizing the project with a good governance process will contribute to harmonization. In Turkey, it is expected that such projects will increase depending on the energy need in the coming periods. Before starting similar projects, eliminating all the problems of the settlements where the local people will move will ensure that the local people do not experience disappointment in terms of expectations and adaptation in the new campus. In addition, we can say that increasing new living opportunities, ensuring that local people first benefit from opportunities such as employment opportunities provided by the dam project and finally gaining a new status for such immigrants by expanding the refugee article of the 1951 Geneva Convention will turn resettlement into an opportunity, not a problem.

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