

Dissonant Heritage: A Comprehensive Analysis of Local Voices, Perceptions, and Challenges
in the Development of Dark Tourism in Muynak

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Abstract

This dissertation investigates the development of dark tourism in the town of Muynak following the environmental disaster of the Aral Lake. It explores how Muynak transformed into a dark tourism destination, the perceived impacts of this development on local communities, the challenges associated with dark tourism, and the extent to which residents support its further growth. An exploratory sequential mixed-methods design was employed, combining qualitative interviews with experts and stakeholders, quantitative surveys of local residents, as well as informal interviews and field observations to provide contextual insights. Findings reveal that Muynak has gradually transitioned from a leisure-oriented tourism destination to a dark tourism site. Economic and environmental benefits were particularly significant, whereas socio-cultural impacts were comparatively modest. Despite the presence of challenges, local communities generally support further dark tourism development due to its positive economic and environmental outcomes. The study offers both practical and theoretical implications for policymakers and businesses, highlighting strategies to enhance benefits, address challenges, and promote sustainable, community-oriented tourism development.

Abstract (Deutsch)

Diese Dissertation untersucht die Entwicklung des Dark Tourism in der Stadt Muynak nach der Umweltkatastrophe des Aralsees. Sie analysiert, wie sich Muynak in ein Dark-Tourism-Reiseziel verwandelt hat, welche wahrgenommenen Auswirkungen diese Entwicklung auf die lokalen Gemeinschaften hat, welche Herausforderungen mit Dark Tourism verbunden sind und in welchem Ausmaß die Bewohner dessen weitere Ausweitung unterstützen. Ein exploratives sequenzielles Mixed-Methods-Design wurde angewandt, das qualitative Interviews mit Experten und Interessengruppen, quantitative Befragungen der lokalen Bevölkerung sowie informelle Interviews und Feldbeobachtungen zur Bereitstellung kontextueller Einblicke kombinierte. Die Ergebnisse zeigen, dass Muynak nach und nach vom freizeitorientierten Tourismusziel zu einem Dark-Tourism-Ort übergegangen ist. Wirtschaftliche und ökologische Vorteile erwiesen sich als besonders bedeutsam, während die soziokulturellen Auswirkungen vergleichsweise gering waren. Trotz bestehender Herausforderungen befürworten die lokalen Gemeinschaften im Allgemeinen eine weitere Entwicklung des Dark Tourism aufgrund seiner positiven wirtschaftlichen und ökologischen Effekte. Die Studie liefert sowohl praktische als auch theoretische Implikationen für politische Entscheidungsträger und Unternehmen und hebt Strategien hervor, um Vorteile zu maximieren, Herausforderungen zu bewältigen und eine nachhaltige, gemeinschaftsorientierte Tourismusentwicklung zu fördern.

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Abbreviations

ASBP – Aral Sea Basin Program

CIS – Commonwealth of Independent States

FEMA – Federal Emergency Management Agency

IAEA – International Atomic Energy Agency

ICWC – Interstate Commission for Water Coordination of Central Asia

IFAS – International Fund for Saving the Aral Sea

IOM – International Organization for Migration

NOAA – National Oceanic and Atmospheric Administration

NWF – National Wildlife Federation

NWS – National Weather Service

OIC – Organization of Islamic Cooperation

PAHO – Pan American Health Organization

RO – Research Onion

SET – Social Exchange Theory

UN – United Nations

UNDRR – The United Nations Office for Disaster Risk Reduction

UNESCO – United Nations Educational, Scientific and Cultural Organization

UNWTO – United Nations World Tourism Organization

WNA – World Nuclear Association

WTTC – World Travel and Tourism Council

Definition of Terminologies

Local communities – In this study, local communities refers specifically to the residents living within the boundaries of the town of Muynak. Since Muynak consists of several communities with a total population of approximately 13,000 people, the term is used in the plural form throughout this dissertation.

Perceived impacts – In this study, the impacts of tourism development are explored and analyzed through the perceptions of local communities in the town of Muynak. In other words, the study focuses on the lived experiences of local residents in relation to the development of dark tourism.

Perceived challenges – Similar to the impacts, the perceived challenges in this study are explored and analyzed through the perspectives of the local communities in Muynak. The main focus is to identify the types of challenges that local residents experience, which may hinder their engagement in the development of dark tourism—both on a personal level and at the broader community level.

1.0 Introduction

1.1 Study background

Disasters, whether manmade or caused by nature, are an inevitable part of our planet, affecting our lives and well-being. However, there has been a sharp increase in disasters primarily due to climate change in the last few decades. In the 21st century alone, there have been 7,348 disasters worldwide, resulting in the loss of 1.23 million lives and affecting 4.2 billion people, causing damages of \$2.97 trillion (UNDRR 2021).

Some of the major natural disasters worth mentioning include the 2005 Hurricane Katrina in the United States, which caused over 1,800 deaths and \$108 billion in damages (NWS 2025; FEMA 2025), and the 2010 earthquake in Haiti, which took the lives of 200,000 people (IOM 2025; PAHO 2025). In terms of manmade disasters, important examples include the 1986 Chernobyl nuclear disaster, which led to the evacuation of the entire town of Pripjat, home to 30,000 inhabitants, and caused nuclear contamination in the air, forests, and farmlands (IAEA 2006; WNA 2025), and the 2010 Deepwater Horizon Oil Spill, which killed hundreds of fish and bird species and left thousands more in potential danger (NOAA 2024; NWF 2025).

Perhaps the most infamous and costly manmade disaster of the 20th century was, and arguably remains, the desiccation of the Aral Lake. Caused by the Soviet authorities' improper understanding of nature, who aimed to transform the deserts and plains of Central Asia into a center of agriculture and cotton production, the world's largest inland lake began to shrink (WOLFF 1996; WEINTHAL 2001; DE CHAZOURNES 2006; EDELSTEIN 2012; GAYBULLAEV, CHEN, GAYBULLAEV 2012; WHITE 2013; FUSCO, QUAGLIAROTTI 2016; HANKS 2021; WHEELER 2021). The withdrawal of the Aral Lake was largely due to the construction of irrigation canals of various lengths to feed the agricultural lands and water-hungry cotton fields, which diverted water inflow from the Amu and Syr rivers (ALADIN, POTTS 1992; GIESE, BAHRO, BETKE 1998; SPOOR 1998; BOOMER, ALADIN, PLOTNIKOV, WHATLEY 2000; OPP 2007; KHAMZAYEVA, RAHIMOV, ISLAMOV, MAKSUDOV, MAKSUDOVA, SAKIEV 2009; BRECKLE, GELDYEVA 2011; ALADIN, CHIDA, CHUIKOV, ERMAKHANOV, KAWABATA, KUBOTA, MICKLIN, PLOTNIKOV, SMUROV, ZAITZEV 2018). Consequently, the socio-economic conditions of local communities in and around the Aral Lake stagnated, leaving thousands of families

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unemployed and suffering from health issues such as anemia and asthma (MICKLIN 2007; CRIGHTON, BARWIN, SMALL, UPSHUR 2011; GADAEV, YASAKOV 2012; REIMOV, FAYZIEVA 2013; UN 2017; IFAS 2019; LOODIN 2020; MICKLIN, ALADIN, CHIDA, BOROFFKA, PLOTNIKOV, KRIVONOGOV, WHITE 2020; PLOTNIKOV, ALADIN, ZHAKOVA, MOSSIN, HØEG 2023).

Subsequently, unfortunate and disastrous events leave local communities in economic and socio-cultural disparity (ORCHISTON, HIGHAM 2016; TSAI, WU, WALL, LINLIU 2016). However, the development of the tourism and hospitality industry has been seen as an alternative source of income for local communities impacted by natural or manmade disasters (CHENG, ZHANG 2020; CHOUHAN, THIEKEN, BUBECK, MUKHERJEE 2023). Principally, in areas devastated by disasters, an unconventional form of tourism known as dark tourism has emerged as a potential phenomenon to alleviate some of the financial and socio-economic burdens (XING, JIE, LU, ZHANG, YANG, SIFENG 2014; MILLER, GONZALEZ, HUTTER 2017; LIN, KELEMEN, TRESIDDER 2018).

Despite the unpleasant nature of visiting sites of death and destruction, there has been an increase in visitation to dark tourism sites in the postmodern era (ROJEK 1993; FOLEY, LENNON 1996; SEATON 1996; BEECH 2000; STONE 2005; STONE, SHARPLEY 2008; STONE 2012; STONE 2013; LIGHT 2017; HARTMANN, LENNON, REYNOLDS, RICE, ROSENBAUM, STONE 2018; WANG, CHEN, XU 2019; LIGHT, IVANOVA 2022). Dark tourism has the potential to create employment at destination sites, provide income for local communities, and strengthen their socio-cultural pride while offering emotional and educational experiences for tourists (PEZZULLO 2009; DUNKLEY, MORGAN, WESTWOOD 2011; TINSON, SAREN, ROTH 2015; CHANG LIHUI 2017; ISAAC, NAWIJN, LIEMPT, GRIDNEVSKIY 2019; JAMIN, ZAIN, SAKARJI, AHMAD, BETA 2020; DHIRAJ, KUMAR, RANI 2024), particularly in developing and underdeveloped countries.

Tourism and the hospitality industry are formidable components of the world economy and global trade. According to the UN Tourism report (UN TOURISM 2025), despite challenges due to the COVID-19 pandemic, the tourism and hospitality sector was able to recover and even surpass its pre-pandemic levels. For example, in 2024, 1.4 million tourists traveled

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globally, an 11% increase from 2023, generating \$1.9 trillion and increasing its value by 3% compared to 2019. Furthermore, the tourism and hospitality industry supported 357 million jobs and is expected to generate 91 million more jobs in the next decade, contributing to the global GDP of \$10.9 trillion, representing 10% of the world economy (WTTC 2025a, 2025b).

Uzbekistan has been actively developing and promoting its tourism and hospitality industry, viewing it as one of the most important sectors of its national economy (AIREY, SHACKLEY 1997; KANTARCI, UYSAL, MAGNINI 2014; ALLABERGANOV, PREKO 2022; UL HAQ, PARDAEV, ALLAYAROV, MUNIR 2024). The government has implemented several policy measures to expand the tourism sector, attract foreign investors, and increase international tourist arrivals (KANTARCI 2007; WORLD BANK 2017; SHA, CEKUTA 2019; UZBEKISTAN.TRAVEL 2024). As a result, according to the latest available data from 2024, Uzbekistan's tourism and hospitality industry generated approximately 700,000 jobs and contributed \$4.1 billion to the national economy (WTTC 2024).

In the context of dark tourism development, the town of Muynak, located on the former shores of the Aral Lake, presents a unique opportunity to become Central Asia's primary dark tourism destination (HANKS 2021; MATYAKUBOV, FILIMONAU, ERMOLAEV 2022; UZBEKISTAN.TRAVEL 2025). Over recent years, Muynak has undergone significant changes aimed at attracting both domestic and international visitors. Unlike many of Uzbekistan's heritage destinations, Muynak possesses a distinctive form of heritage—the legacy of ecological disaster—that could be capitalized on and promoted as a dark tourism site across the region (CENTRAL ASIA GUIDE 2024; ORABI, THIEL 2024; GOV.UZ 2025).

To better understand dark tourism in Muynak, it is useful to consider other sites around the world that have developed similar attractions. For example, Chernobyl in Ukraine (YANKOVSKA, HANNAM 2014) and the Killing Fields in Cambodia attract large numbers of visitors each year, providing economic opportunities for local communities while also raising ethical and environmental concerns (HUGHES 2008). These cases show that dark tourism can act as both a source of income and a site of potential controversy (PEZZULLO 2009; SHARPLEY 2009; DALE, ROBINSON 2011; AMUJO, OTUBANJO 2012; DANN, SEATON 2013; FARMAKI, ANTONIOU 2017; JAMIN ET AL. 2020; DHIRAJ ET AL. 2024). Therefore, examining the experiences of local communities in Muynak allows this study

to situate the town within a global context of dark tourism and emphasizes the importance of understanding local perspectives in tourism development.

1.2 Problem statement

When a location transforms into a touristic site, whether for leisure tourism or dark tourism, it is the local communities that often bear the burdens of tourism development and incoming tourists (JUROWSKI, UYSAL, WILLIAMS 1997; ANDERECK, VALENTINE, KNOPE, VOGT 2005; LAI, HITCHCOCK 2017; DITTMANN, MIRZAEI 2017). First and foremost, local communities must understand the form of tourism development occurring in their area, a concept known as destination awareness (TIMOTHY 2000; SAARINEN 2010; CÁRDENAS, BYRD, DUFFY 2015), followed by their perception of its ultimate impact on their well-being. Specifically, local communities can be impacted economically, socio-culturally, and environmentally in positive or negative ways, which in turn may influence their perceptions and attitudes toward incoming tourism (LIU, SHELDON, VAR 1987; JUROWSKI ET AL. 1997; SHARPLEY, TELFER 2002; ANDERECK ET AL. 2005; REIMANN, LAMP, PALANG 2011; LIANG, HUI 2016; ALIZADEH, MIRZAEI, DITTMANN 2021; DITTMANN 2024b).

In a best-case scenario, where local communities benefit from tourism, this may result in favorable support for further tourism development and positive attitudes toward tourists. In a worst-case scenario (GAUTAM 2023), it can create obstacles for local authorities and managers in planning and developing the site, leading to internal conflicts and unsustainable practices (OKECH 2010; STONE 2011; AKOVA, ATSIK 2019; SETOKOE, RAMUKUMBA 2020). As a result, it is highly recommended that local authorities and tourism developers consider the potential impacts of tourism on local communities and cooperate with them to avoid conflicts and unsustainable development (MBAIWA 2005a; SHENG, TSUI 2010; STRICKLAND-MUNRO, MOORE, FREITAG-RONALDSON 2010; KANG, LEE 2018; ESLAMI, KHALIFAH, MARDANI, STREIMIKIENE, HAN 2019; HAN, RAMKISSOON, YOU, KIM 2023; WANG, HU, PARK, YUAN, CHEN 2023). Therefore, studying and understanding local communities' perceptions of dark tourism sites is paramount for authorities and tourism managers, as these communities are the primary stakeholders who interact with incoming tourists (KIM, BUTLER 2015; CHANG 2021).

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Since the destruction of the Aral Lake, the town of Muynak has faced a trajectory similar to many other post-Soviet towns in Central Asia (WHEELER 2021). Nevertheless, unlike many other locations, Muynak possesses a unique dark tourism heritage and has taken a distinctive route in recovering from economic, socio-cultural, and environmental challenges caused by the Aral Lake disaster. In particular, Muynak has experienced growth in dark tourism due to promotion and development efforts by the government of Uzbekistan. Between 1991 and 2024, the town has transformed into a dark tourism destination with facilities such as museums and the “cemetery of ships,” attracting both international and domestic visitors. As Muynak develops as a dark tourism site, local communities are the first to experience its impacts (UZBEKISTAN.TRAVEL 2025).

Exploring and understanding local communities’ perceptions and attitudes at dark tourism sites is also essential for the development and promotion of effective policies by stakeholders and policymakers (THIEL 2015; PANAYIDOU, CHRISTOU, SAVERIADES 2024). Although there has been a rise in dark tourism research in recent years (MANGWANE, HERMANN, LENHARD 2019; NHLABATHI, MAHARAJ 2020; MIN, YANG, THAPA-MAGAR 2021), most studies have focused on the motivations and behaviors of tourists rather than on the local communities that host these sites. Furthermore, research conducted in developing countries is limited (RAJASEKARAM, HEWEGE, PERERA 2022), and few studies consider the economic, socio-cultural, and environmental impacts of dark tourism simultaneously (KIM, BUTLER 2015).

This is particularly true in the case of Uzbekistan. Despite significant progress in tourism development and a rising number of international visitors, there remains a lack of research examining local communities’ experiences and perspectives (EITZENBERGER, THIMM 2022; EITZENBERGER, THIMM 2024). This gap highlights the need for research that explores the perceptions and experiences of local communities, particularly in post-Soviet settings like Muynak (ALLABERGANOV, CATTERALL 2023), to better understand how tourism development affects these communities—an understanding that is critical for the successful development of tourism in Uzbekistan (KARIMOV, JEONG, OKMULLAEV 2025).

The main goal of this study is to explore the perceptions of local communities in Muynak regarding dark tourism development, its impacts and challenges, and their influence on further

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tourism development. To achieve this, Social Exchange Theory (SET) will be utilized as the theoretical framework to explain and discuss the findings.

1.3 Research questions and objectives

To understand the development of dark tourism in Muynak, its impacts and challenges, and their ultimate influence on further tourism development by local communities, the following research questions and objectives were formulated:

1.3.1 Research Questions

1. What are the perceptions and experiences of local communities regarding the transformation of Muynak into a dark tourism site?
2. How do local communities in Muynak perceive and experience the impacts and challenges of dark tourism development?
3. To what extent do perceived impacts and challenges influence local communities' support for dark tourism development in Muynak?

1.3.2 Research Objectives

- To explore local communities' perceptions of tourism in Muynak before the Aral Lake disaster.
- To explore local communities' perceptions of tourism in Muynak after the Aral Lake disaster.
- To investigate local communities' perceived economic impacts of dark tourism in Muynak.
- To investigate local communities' perceived socio-cultural impacts of dark tourism in Muynak.
- To investigate local communities' perceived environmental impacts of dark tourism in Muynak.
- To investigate perceived challenges faced by local communities due to dark tourism in Muynak.
- To measure local communities' perceived economic impacts on support for dark tourism in Muynak.
- To measure local communities' perceived socio-cultural impacts on support for dark tourism in Muynak.
- To measure local communities' perceived environmental impacts on support for dark tourism in Muynak.

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- To measure local communities' perceived challenges affecting support for dark tourism in Muynak.

1.4 Contribution of the Study

Exploring and understanding local communities' perceptions of dark tourism development in Muynak offers significant contributions to various stakeholders. First, since local communities' perceptions and support toward tourism development are crucial (ANDRIOTIS 2005; PANAYIDOU ET AL. 2024), governments and policymakers are primary beneficiaries of this study. Understanding the current impacts of dark tourism and whether local residents support its further development can help policymakers design and implement effective strategies. Properly developed dark tourism policies in Muynak will not only gain community support but also enhance sustainability in the long term.

Second, this study benefits businesses and investors interested in dark tourism development in Muynak. Understanding local communities' perceptions and support can help potential investors collaborate effectively with residents, minimizing conflicts. Improved collaboration can lead to more innovative and profitable business ventures, generating wealth and fostering community empowerment.

In addition to practical contributions, this study also provides theoretical insights by applying Social Exchange Theory (SET) in a developing country context. By applying the SET and testing it in Muynak, this research contributes to a deeper understanding of how local communities perceive and respond to dark tourism development. This approach also extends the application of SET beyond primarily Western case studies, providing a more global perspective on dark tourism research.

1.5 Structure of the Study

This dissertation is organized into five chapters:

Chapter 1: Introduction presents the overall background of the study, the rationale for conducting this research, research objectives and questions, and potential contributions to stakeholders.

Chapter 2: Literature Review provides detailed information on the Aral Lake, including its historical decline and current conditions, followed by an examination of previous studies on dark tourism, including definitions and key topics. This chapter also reviews existing literature on local communities' perceptions of tourism development, its impacts and challenges, and

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their support for tourism initiatives. Finally, a detailed review of Social Exchange Theory (SET) is presented, covering its history, definition, and major studies to date.

Chapter 3: Methodology outlines the research design and approach employed, including sampling techniques, data collection methods, triangulation, data analysis, and ethical considerations for both qualitative and quantitative methods.

Chapter 4: Results presents the findings through qualitative analysis of local communities' perceptions of dark tourism development, its impacts, and challenges, followed by quantitative analysis of how these perceptions influence support for further tourism development.

Chapter 5: Discussion and Conclusion provides a comprehensive review of the results, their practical and theoretical implications, original contributions, limitations, and recommendations for future research.

2.0 Literature review

2.1 Aral Lake

2.1.1 Nature's Mistake

The Aral Lake (Figure 1) is an enclosed inland sea located in the heart of Central Asia at approximately 45°N latitude and 60°E longitude. Its basin covers about 2.2 million km² and consists mainly of desert regions, including the Kyzyl Kum (Red Sand) to the southeast and the Kara Kum (Black Sand) to the southwest (MICKLIN 2013). To the north, the lake is bordered by dry steppes that receive minimal annual precipitation. Historically, the Soviet authorities infamously labeled the Aral Lake as “Nature’s Mistake,” claiming it served no practical purpose. Geographically, the lake formed a natural boundary between Uzbekistan and Kazakhstan (HANKS 2021).

Figure 1. Aral Lake and its basin



Source: Draft A. ALLABERGANOV, Cartography L. DIEHL 2021 based on MICKLIN 2007

Literature review

Before its desiccation, the surface area of the Aral Lake measured approximately 69,790 km², with a water volume of about 1,080 km³ (IFAS 2019). The lake had no outflow and relied entirely on inflows from its two main tributaries—the Amu Darya and Syr Darya rivers—to sustain its water level. Prior to its decline, the Aral Lake was recognized as the world’s fourth-largest inland body of water, following Lake Victoria in Africa, the Caspian Sea in Asia, and Lake Superior in North America (MICKLIN 2013). The inflows from the Amu Darya and Syr Darya helped balance evaporation rates and maintain the lake’s salinity levels (WHEELER 2021).

The Amu Darya, also known as the Oxus in antiquity, lies in the southern part of Central Asia and carries more water than the Syr Darya. It is the region’s most significant river, contributing substantially to the water balance of the Aral Lake. Originating in the Pamir Mountains—spanning Tajikistan, Kyrgyzstan, and Afghanistan—the Amu Darya travels approximately 2,620 km and drains an area of about 465,000 km² before reaching the Aral Lake. Because its source lies in the melting snow of the Pamir Mountains, the river’s discharge peaks in summer and decreases during winter (MICKLIN 2013: 15-40).

The river begins at the confluence of the Vakhsh and Panj rivers before flowing northwest, delineating parts of the modern territories of Uzbekistan, Afghanistan, and Turkmenistan. Several tributaries feed it along its middle course, including the Kafirnigan, Surkhandarya, Sherabad, and Kunduz rivers. Approximately 74 % of the river’s total flow originates in Tajikistan, 14 % in Afghanistan and Iran, and 8 % in Uzbekistan. In its lower course, the Amu Darya receives no additional tributaries and continues its journey through the Karakum Desert—largely within modern-day Turkmenistan—where significant evaporation occurs (CAWATERINFO 2025).

The Syr Darya, also known as the Jaxartes in ancient history, lies in the northern part of Central Asia. In comparison to the Amu Darya, the Syr Darya is a longer river but carries a smaller volume of water. Similar to the Amu Darya, it is the second most important river feeding the Aral Lake, helping to maintain the lake’s water volume. The Syr Darya originates in the Tien Shan Mountains of Kyrgyzstan and flows for approximately 3,078 km, draining an area of about 462,000 km² (MICKLIN 2013: 15-40).

The main tributaries of Syr Darya are Keles, Arys, Badam, Boroldai, and Bugun, located in Kazakhstan (FAO 2012). Water discharge mainly occurs in summer, with June being the peak

month. The river begins at the confluence of the Naryn and Qoradaryo rivers, located in the fertile Ferghana Valley of Uzbekistan. From there, Syr Darya briefly enters Tajikistan before reentering Uzbekistan, then flows into Kazakhstan, and finally reaches Aral Lake. Overall, 75% of Syr Darya is formed in Kyrgyzstan, 15% in Uzbekistan, 7% in Kazakhstan, and 3% in Tajikistan (CAWATERINFO 2025).

Contrary to the Soviet belief, the Aral Lake has been crucial for the political, economic, socio-cultural, and ecological well-being of Central Asian communities, including Uzbeks, Kazakhs, Turkmens, and Karakalpaks, who inhabit its basin. For example, the Aral Lake and its rivers, such as the Amu Darya and Syr Darya, historically acted as natural borders between empires and kingdoms, providing protection from foreign raids and invasions (FAO 2012).

Furthermore, the Amu Darya and Syr Darya river systems, along with their tributaries, enabled transportation and trade between different cities and towns in Central Asia. Ships and boats carried valuable resources and trade items from the upper reaches to the lower streams and vice versa. Trade along the riverbanks facilitated the exchange of ideas and culture, enriched civilizations, and provided employment opportunities. Fishing and hunting were prominent activities among local communities, complementing agricultural production in the Aral Lake basin for thousands of years. These activities provided both commercial value and essential food staples (ZONN 2010a; WHITE 2013). In fact, ancient civilizations such as the Massagetae, who inhabited the plains and river basins of Central Asia, were skilled hunters and fishermen. According to Herodotus, their expertise demonstrates that the Amu Darya and Syr Darya—known in antiquity as the Oxus and Jaxartes—played a pivotal role in supporting the well-being of ancient societies (WEST 2010).

Ecologically, the Aral Lake significantly influenced the climate and temperature regulation of Central Asia for centuries, contributing to regional environmental stability. In this way, it served as a climate mitigator, enabling agricultural development and sustaining the well-being of local populations (IFAS 2019). For example, the Aral Lake moderated winter temperatures, keeping them warmer, and regulated summer heat, creating favorable conditions for diverse ecosystems. This climatic moderation supported various fish species, millions of saiga antelopes, and hundreds of plant species in the region (UN 2017).

2.1.2 The White Gold

The Aral Sea has naturally experienced desiccation multiple times in its history, including during the Late Akchagylian (2 million years ago) and the Late Pleistocene (20,000 years ago),

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primarily due to climate changes and tectonic activity. Water levels of the Aral Sea also fluctuated in connection with the Caspian Sea during earlier geological periods. In more recent centuries (Late Holocene), human activities, particularly irrigation, have contributed to additional declines in water levels (BOOMER ET AL. 2000).

Human interventions affecting the Aral Sea date back centuries. During the Mongol invasions of Central Asia, much of the region, including its oases, was destroyed (BRECKLE, GELDYEVA 2011). This destruction was partially caused by the diversion of the Amu Darya River inflow from the Aral Sea toward the Caspian Sea, which stabilized again by the mid-1600s. A similar situation occurred during the reign of the famous warlord Tamerlane, who diverted the Amu Darya westward to flood cities he was conquering (MICKLIN ET AL. 2020).

Local agricultural activities further impacted the lake. Populations and civilizations in the Aral Sea basin developed extensive irrigation systems to support agriculture, particularly along the Amu Darya and Syr Darya rivers and in their deltas (MATLEY 1970). Archaeological findings confirm sustained agricultural practices in these areas. Despite irrigation activities up to the 1960s, lake levels remained relatively stable due to return flows from the fields. For example, cotton production has been part of the Central Asian economy for centuries, though historically its cultivation was minor and largely met local demand (HANKS 2021).

The geopolitical and geoeconomic landscape of Central Asia changed dramatically in the 1800s with the conquest of the region by the Russian Empire. Interest in Central Asia had long been present in the foreign policy agenda of the Russian Empire, particularly in its ambition to transform the region into productive agricultural land (MATLEY 1970; FUSCO, QUAGLIAROTTI 2016). After the fall of Tsarist Russia and during the Soviet era, Central Asia was designated as a primary site for cotton production in response to increasing global demand for textiles, marking the beginning of what became known as the production of “white gold” (WHEELER 2021; AHN, KAMALOV, JURAEV 2024).

This process intensified as the Soviet Union entered the Cold War era as a newly established global power, which required a substantial boost in both economic and military resources. Within this framework, Kazakhstan was designated as a major food producer, whereas Uzbekistan became the center of cotton production for the Soviet economy. Through the

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implementation of the Virgin Lands Campaign, the Soviet Union ultimately became the world's largest exporter of cotton (FUSCO, QUAGLIAROTTI 2016).

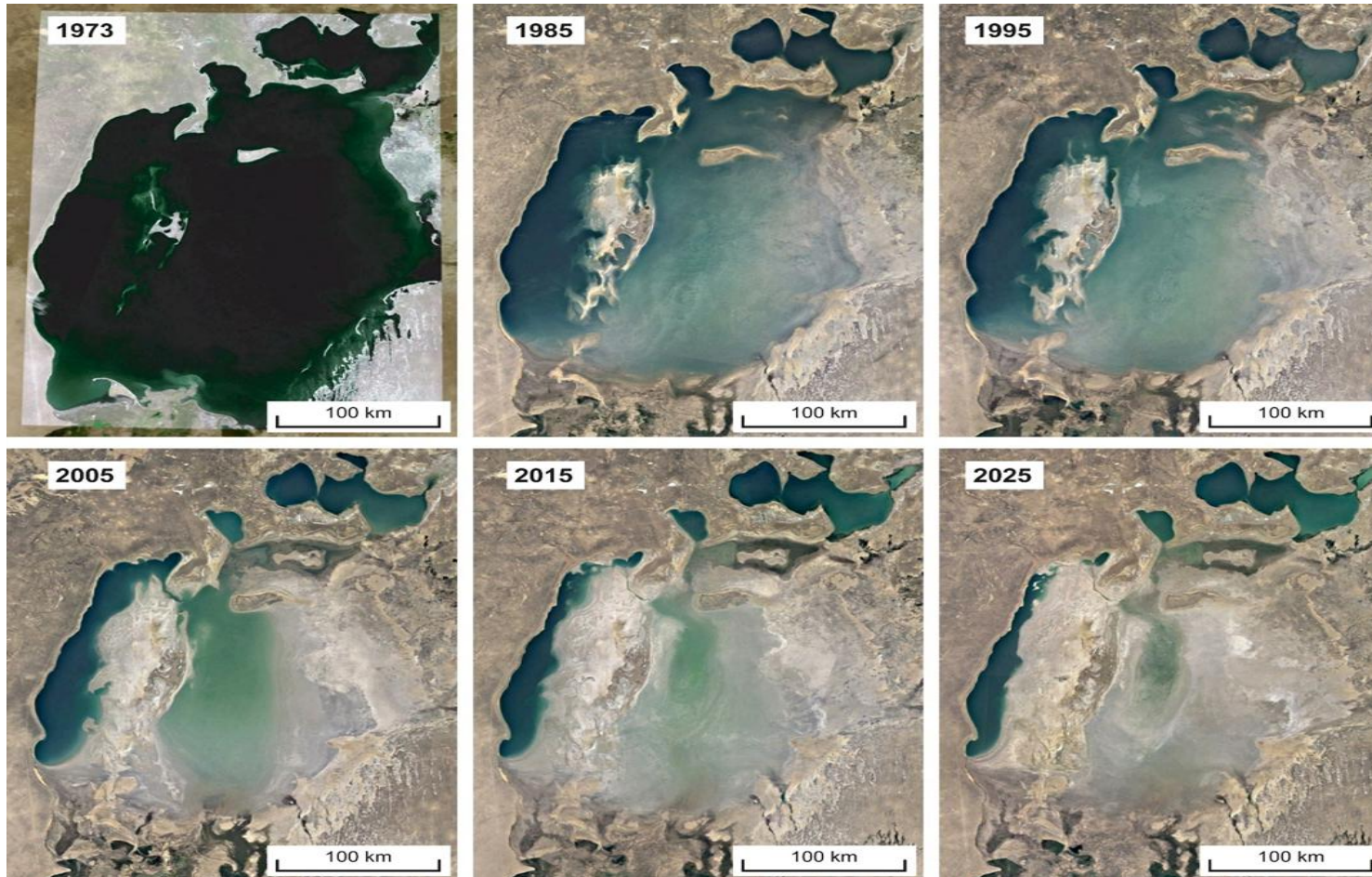
The cultivation of cotton was achieved not only by converting existing farmlands but also by expanding agriculture into the arid steppe and desert regions of the Kyzylkum and Karakum (ZONN 2010B). This agricultural expansion of the Soviet Union's initiative required the construction of massive irrigation canals to sustain cotton cultivation which was in reality unsustainable. These canals were designed and built along the banks of the Amu Darya and Syr Darya rivers, diverting their freshwater inflows away from the Aral Lake (GIESE ET AL. 1998; EDELSTEIN 2012; OPP 2007; OPP, GROLL 2009). By the end of the project, approximately 20,000 miles of canals, 45 dams, and 80 reservoirs had been constructed, drastically reducing the lake's inflow (KHAMZAYEVA ET AL. 2009).

Starting with the construction of irrigation canals that diverted water inflow from the Aral Lake, between 1960 and 1981 the lake's inflow decreased by approximately 47%, causing evaporation to exceed replenishment (ALADIN, POTTS 1992). As a direct result, the average level, area, and volume of the lake began to decline from 1960 onward (Figure 2). For example, in the 1960s, the average level of the Aral Lake was 53.4 m, its surface area was 66,900 km², and its volume was 1,090 km³. In the 1970s, however, the average level dropped to 48.3 m, the area to 55,700 km², and the volume to 763 km³. This trend unfortunately continued, and by the mid-1980s, the average level had dropped further to 41.4 m, with the volume declining to 418 km³ (SPOOR 1998).

By 1980, the Aral Lake had already lost half of its volume compared to the 1960s and continues to shrink to the present day (GAYBULLAEV ET AL. 2012). The situation worsened after the collapse of the Soviet Union in the mid-1990s, when the lake divided into a smaller and a larger water body. At this time, the smaller lake had an average level of 39.9 m, an area of 2,689 km², and a volume of 21 km³, whereas the larger lake measured 36.9 m in average level, 30,953 km² in area, and 279 km³ in volume. This process continued, and the once world's fourth-largest inland lake gradually deteriorated into three smaller bodies of water: a long and narrow western lake, a larger eastern lake, and a small northern lake (SPOOR 1998), ultimately leading to the creation of a new terrain now known as the Aralkum Desert (BRECKLE 2012).

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Figure 2. Aral Lake changes from 1973 to 2025



Source: Draft A. ALLABERGANOV, Cartography L. DIEHL 2025 based on GOOGLE EARTH 2025

2.1.3 Aralkum Desert

As a result of the desiccation of the Aral Lake, a new terrain officially known today as the Aralkum Desert was formed (Figure 3). The territory of the current Aralkum represents the former vast seafloor of the Aral Lake. Approximately 20% of the area consists of sandy desert, 70% of salt desert, and the remaining 10% of wetlands, together covering nearly 60,000 km² (BRECKLE, WUCHERER 2011). The Aralkum Desert mainly consists of toxic dust, saline soils, and pesticide residues that were washed downstream from centuries of agricultural activity along the banks of the Amu Darya and Syr Darya rivers (ZETTERSTRÖM 1999; O'HARA, WIGGS, MAMEDOV, DAVIDSON, HUBBARD 2000; KULMATOV, HOJAMBERDIEV 2010).

This anthropogenic landscape poses a significant threat to the ecology and biology of the Aral Lake basin. For instance, the lack of vegetation in the Aralkum area increases the risk of contamination as dust storms and winds carry toxic dust, salt, and pesticides hundreds of kilometers, affecting local flora, fauna, and the well-being of nearby communities (SAIKO 1998). Consequently, soil salinization across the Aral Lake basin has intensified, negatively impacting both agriculture and human health (LIOUBIMTSEVA 2023).

The problem of dust storms carrying hazardous chemicals and pesticides has worsened with the expanding desertification of the region (OPP, GROLL, ASLANOV, LOTZ, VERESHAGINA 2017). This issue is compounded by the legacy of the former Soviet biological laboratory that once operated in the Aralkum area prior to the Aral Lake's complete withdrawal (INDOITU, KOZHORIDZE, BATYRBAEVA, VITKOVSKAYA, ORLOVSKY, BLUMBERG, ORLOVSKY 2015). For example, increased soil and water salinization, toxic winds, and rising summer temperatures linked to climate change (PLOTNIKOV ET AL. 2023) have led to a drastic decline in biodiversity. The number of animal species in the region decreased from 178 to 38, while fish in the Aral Lake completely disappeared. Additionally, vegetation types such as reed and Tugay thickets have been severely degraded (REIMOV, FAYZIEVA 2013).

The Soviet authorities were aware of the potential consequences of diverting the Amu Darya and Syr Darya rivers to irrigate the vast plains of Central Asia. However, the financial benefits from cotton—and to a lesser extent, rice—production were deemed more valuable than the

well-being of local communities or the lake itself (WHEELER 2021). As with many other human-induced environmental disasters, the desiccation of the Aral Lake led to devastating consequences for local populations in Central Asia, particularly in the economic, ecological, and public health sectors (O'HARA ET AL. 2000; LIOUBIMTSEVA 2013).

One of the first and most direct impacts of the Aral Lake disaster was socio-economic (ALIKHANOVA, MILNER-GULLAND, BULL 2024). As a result of large-scale water withdrawals and increasing salinity in the remaining water, the once-abundant fish populations began to disappear (ALADIN ET AL. 2018). Many towns and villages that depended on fishing for their livelihoods suffered massive economic losses, leading to the collapse of the regional fishing industry (ANNIN 2018). Notably, towns such as Aralsk in Kazakhstan and Muynak in Uzbekistan were once thriving fishing hubs during the Soviet era, catching thousands of tons of carp, bream, and catfish annually and serving as major local employers (REIMOV, FAYZIEVA 2013).

Following the fishing industry that employed people in fish catching and canning, others were also involved in ship and factory machinery maintenance work. Hunting and cattle breeding were also prominent economic activities in the Aral Lake area. Furthermore, because there was still water in the Aral Lake, a small number of people were involved in local domestic tourism (KARIMOV, LIETH, KURAMBAEVA, MATSAPAEVA 2005). The loss of employment opportunities triggered mass migration from towns such as Muynak to other parts of Uzbekistan and Kazakhstan as residents sought better economic prospects (SAIKO 1998).

The most severe consequence of the Aral Lake's desiccation has been the public health crisis (HERBST 2006), especially in the western regions of Uzbekistan, primarily in the Autonomous Republic of Karakalpakstan (ANNIN 2018). This crisis is largely caused by windborne pesticides and chemicals originating from intensive agricultural activities in the upstream regions of Uzbekistan and Kazakhstan, compounded by contaminated and poorly managed water systems (ZETTERSTRÖM 1999; DE CHAZOURNES 2006). Major health issues in this region include high rates of infant mortality, anemia, typhoid, and hepatitis, affecting both adults and children (CRIGHTON ET AL. 2011).

Finally, the economic losses resulting from the degradation of the Aral Lake have been substantial (WOLFF 1996). Environmental and socio-economic impacts such as climate

Figure 3. Aralkum Desert



Source: A. ALLABERGANOV 2025

change, the loss of freshwater and fertile soil, and the collapse of the fishing industry have significantly reduced the region's economic output. According to estimates, this degradation resulted in approximately \$115 million in social losses and \$28.8 million in economic losses annually (DUKHOVNY, SCHUTTER 2003).

2.1.4 Dissonant Heritage

After the collapse of the Soviet Union in 1991, the successor states of Central Asia—Uzbekistan, Kazakhstan, Turkmenistan, Kyrgyzstan, and Tajikistan—faced both new opportunities and challenges related to their inherited environmental and socio-economic heritage. The International Fund for Saving the Aral Sea (IFAS) was established in 1993 through the initiative of the heads of the Central Asian states to slow the decline of the Aral Lake (SEHRING, IBATULLIN 2020; ICWC 2025; IFAS 2025). As a transboundary institution (DITTMANN 2024a), one of IFAS's major roles is to facilitate funding for programs aimed at increasing awareness of the ecological disaster of the Aral Lake, addressing environmental challenges, and improving the socio-economic well-being of affected local residents (GADAEV, YASAKOV 2012).

IFAS is led by a Head elected from among the Presidents of the Central Asian states—Kazakhstan, Uzbekistan, Tajikistan, Kyrgyzstan, and Turkmenistan—for a two-year term (MICKLIN 2016). Over the past 25 years, leadership has rotated among the Presidents of Kazakhstan, Uzbekistan, Turkmenistan, and Tajikistan, while the President of Kyrgyzstan declined to take the position, passing it instead to the President of Tajikistan (IFAS 2019). Currently, the President of Kazakhstan serves as the Head of IFAS (ICWC 2025).

Since its inception, IFAS has developed and implemented four programs known as the Aral Sea Basin Program (ASBP), designed to raise funds and awareness regarding the ecological disaster of the Aral Lake (DE CHAZOURNES 2006). The first program, ASBP-1, was implemented between 1995 and 2003 (KUBO, TATENO, WATANABE, KATO 2009) and consisted of nine subprojects aimed at managing transboundary water issues, improving infrastructure, enhancing public health by addressing issues such as cancer and anemia, and raising environmental awareness. ASBP-1 was initially supported by the World Bank and other regional and international organizations, receiving over \$60 million during the first phase (1995–1997). The second phase (1998–2003) was funded by the Global Environment Facility and the governments of Sweden and the Netherlands (IFAS 2019).

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ASBP-1 was particularly successful in the northern section of the Aral Lake under the PRSSAM-1 subproject (Preservation of the Northern Aral Sea and Regulation of the Syr Darya River), which received \$64 million from the World Bank and an additional \$21 million from the government of Kazakhstan. PRSSAM-1 improved the flow of the Syr Darya River, enhanced regional irrigation, and preserved the northern part of the Aral Lake through the construction of the Kokaral Dam. As a result, biodiversity in the Kazakh section of the Aral Lake was restored, and socio-economic conditions improved, particularly in the fishing industry (IFAS 2019).

Following the success of ASBP-1, the heads of the Central Asian states initiated ASBP-2 (ANGHELESCU, ONEL 2024). This program focused on further improvements in transboundary water management, disaster monitoring, combating desertification, and addressing socio-economic and health challenges in areas affected by the Aral Lake crisis. Unlike ASBP-1, ASBP-2 was implemented in part by the Central Asian states themselves. In Kazakhstan, projects were concentrated in the Kyzylorda province, while in Uzbekistan, priority was given to constructing and filling reservoirs such as Mezhdurechensk, Muynak, Rybachsky, and Dzhilyrbas. Smaller-scale initiatives were also implemented in Turkmenistan, Kyrgyzstan, and Tajikistan (IFAS 2019).

ASBP-3, implemented between 2011 and 2015, continued the objectives of ASBP-2 with the countries financing projects through their own budgets (SEHRING, ZIGANSHINA, KRASZNAI, STOFFELEN 2019). In Uzbekistan, \$736 million from the state budget and \$1,184 million from international loans funded 235 projects, improving water management, preventing desertification, promoting afforestation, restoring and conserving flora and fauna, and strengthening institutional capacity. In Kazakhstan, the PRSSAM-2 subproject built on the successes of PRSSAM-1, constructing dams and hydroelectric complexes to restore ponds and improve water management in the northern Aral Lake (IFAS 2019).

The current program, ASBP-4, launched in 2021 and scheduled for completion in 2030, continues the goals of its predecessors. ASBP-4 aims to strengthen collaboration among the five Central Asian states, improve local and regional water management, raise awareness and promote education on natural disasters, and alleviate the socio-economic conditions of affected residents (IBATULLIN, ZIGANSHINA 2019). The program plans to implement 34 projects by 2030 to achieve these objectives (IFAS 2019).

Despite active transboundary cooperation through IFAS and the implementation of ASBP programs, local communities continue to face difficult socio-economic conditions due to water withdrawals and environmental degradation (WEINTHAL 2001; ALLABERGANOV 2024). However, the tourism and hospitality industry has emerged as a potential avenue to alleviate some of these socio-cultural and economic difficulties (MILLER ET AL. 2017; LIN ET AL. 2018). The government of Uzbekistan has actively promoted tourism development as a strategy to assist communities affected by the Aral Lake crisis (GOV.UZ 2025). Therefore, it is essential to explore and understand the development of tourism, especially dark tourism, as a potential source of income generation and improved livelihoods for local communities in Muynak.

2.2 Tourism in Uzbekistan

Following the collapse of the Soviet Union, the newly established republics of Central Asia found themselves transitioning toward capitalism and a market-based economy. As a result, tourism and hospitality development emerged as promising sectors for investment and promotion, particularly as generators of foreign currency (AIREY, SHACKLEY 1997). Similar to many other global destinations, Uzbekistan possesses numerous tourism attractions located along the famous Ancient Silk Road, including the historic cities of Samarkand, Bukhara, and Khiva, as well as the modern capital city, Tashkent (Figure 4). These destinations attract both international and domestic tourists from across the world (KANTARCI ET AL. 2014; ALLABERGANOV, PREKO 2022).

Tashkent: For most international visitors, their journey to Uzbekistan begins in Tashkent, the nation's capital and largest city. As a modern urban center, Tashkent offers a range of attractions, including museums, food tourism, and examples of Soviet-era architecture. Among the most distinctive experiences are the city's elaborately designed subway stations, each decorated with themes reflecting regional history, such as cotton cultivation and the Silk Road. These stations provide visitors with a glimpse into Uzbekistan's Soviet architectural heritage. Tashkent is also home to several ancient mosques, vibrant bazaars, and markets where tourists can experience the city's Islamic past, taste local cuisine, and shop for dried fruits, nuts, handmade textiles, and silk products (CENTRAL ASIA GUIDE 2022; UNESCO 2025a).

Samarqand: Located a few hours west of Tashkent, the ancient city of Samarkand—known in antiquity as Afrasiab—occupies a prominent place on the Silk Road. The city offers breathtaking sites that reflect its long history, shaped by figures such as Alexander the Great

and Genghis Khan (YÜCEL 2014). Visitors can explore iconic landmarks such as Registan Square and the Ulugh Beg Observatory, both of which highlight the city’s architectural and scientific legacy. Samarkand’s mosques, mausoleums, and tombs of revered saints further embody the city’s rich Islamic cultural and spiritual heritage (UNESCO 2025b).

Figure 4. Main heritage tourism sites of Uzbekistan



Source: Draft A. ALLABERGANOV, Cartography L. DIEHL 2025 based on GMTED 2010 2025

Bukhara: Further west lies the city of Bukhara, another major stop along the Ancient Silk Road (SAZAK 2014). Founded approximately 3,000 years ago, Bukhara has withstood numerous conquests—from the Greeks and Persians to the Mongols—yet continually rebuilt itself as one of the most important centers of Islamic learning and trade in Central Asia. The city boasts hundreds of architectural monuments, including madrassas, mosques, and traditional bazaars, earning it the reputation of an “open-air museum” (UNESCO 2025c).

Khiva: Situated in western Uzbekistan, Khiva is the final major Silk Road city and is particularly renowned for its fortress, Itchan Kala. Historically, this walled city served as a rest

stop for caravans journeying westward toward the Middle East across the Central Asian deserts. Today, Itchan Kala remains well-preserved, offering visitors a unique experience through its narrow streets, madrassas, museums, restaurants, and traditional craft shops (MANGALTEPE 2014). While Khiva receives fewer tourists compared to Samarkand or Bukhara, it is increasingly recognized for its authentic historical ambiance and architectural integrity (UNESCO 2025d).

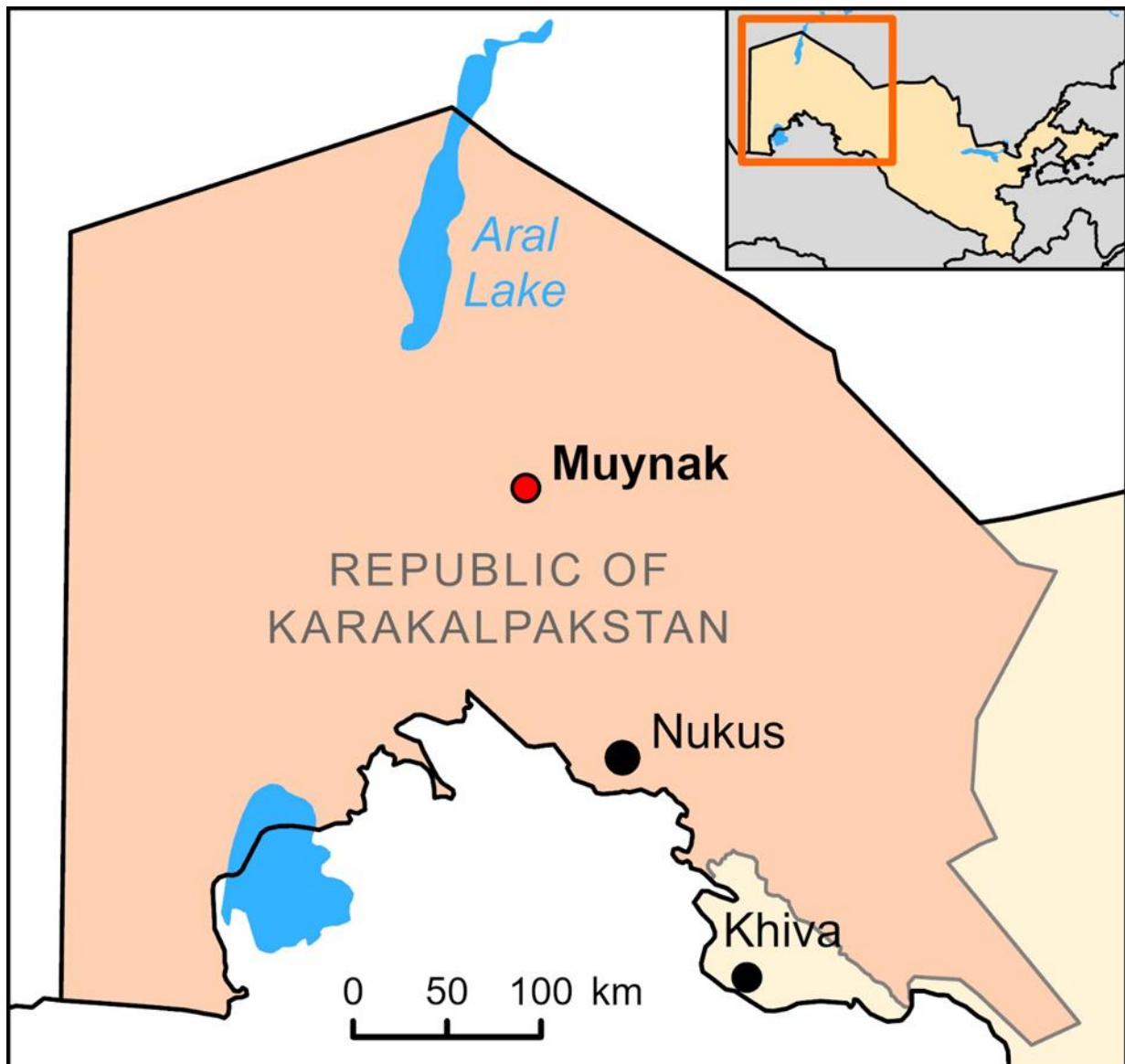
Muynak: In addition to Uzbekistan's well-established heritage destinations (KARIMOV ET AL. 2025), the country also offers other forms of tourism, such as mountain trekking, hunting, fishing, and religious pilgrimage. Among these, the most recently developed and symbolically significant site is the town of Muynak, located in the remote Autonomous Republic of Karakalpakstan (Figure 5). Once a thriving fishing town with a population of about 13,000, Muynak suffered severe socio-economic decline following the desiccation of the Aral Sea and the collapse of the Soviet Union (REIMOV, FAYZIEVA 2013; ANNIN 2018).

During the Soviet period, when the Aral Sea was still in its heyday, the local communities of Muynak were primarily employed in the fishing and canning industries, as well as in the maintenance of related facilities and vessels. However, following the collapse of the Soviet Union, both the fishing and canning industries came to a complete halt, leaving the majority of residents unemployed. As a result, many local community members—particularly Russian-speaking residents—migrated from Muynak to other parts of Uzbekistan or to the Russian Federation. Those who remained in the town faced severe health consequences stemming from the ecological degradation of the Aral Sea and the lack of adequate healthcare infrastructure (LALL 2012).

For decades, the town was largely neglected until the early 2000s, when its unique landscape and tragic history attracted governmental and academic attention for tourism development (GOV.UZ 2025). Unlike Uzbekistan's major heritage centers, Muynak holds strong potential for the promotion of dark tourism, offering visitors the opportunity to engage with the environmental and cultural consequences of the Aral Lake disaster (MATYAKUBOV ET AL. 2022; UZBEKISTAN.TRAVEL 2025). Given its distinctive history and emerging significance, Muynak represents a unique case study and perhaps the foremost example of dark tourism development in Central Asia. Accordingly, it serves as the primary study area for this research.

The government of Uzbekistan has implemented several procedural and infrastructural measures over the past years to develop and modernize its tourism and hospitality industry (KANTARCI 2007). First, to attract a greater number of international visitors, the visa system and its administrative procedures were significantly simplified or completely removed for citizens of many countries. One of the key developments was the introduction of an electronic visa application and processing system, known as the e-visa, which streamlined access for international tourists (WORLD BANK 2017; UN 2018).

Figure 5. Study area



Source: Draft A. ALLABERGANOV, Cartography L. DIEHL 2025 based on GOOGLE MAPS 2025

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Next, substantial infrastructural improvements were carried out in major tourism cities, including Tashkent, Samarkand, Bukhara, Khiva, and Muynak. Road networks and transportation routes connecting these destinations were either restored or completely reconstructed, accompanied by the introduction of high-speed railway systems—most notably the Afrasiab trains—allowing tourists to travel between cities more efficiently and comfortably (Sha, Cekuta 2019). Furthermore, to ensure the safety and security of international tourists, the government established a Tourism Police Department, which operates alongside the regular police forces to provide assistance in major tourist zones (UZBEKISTAN.TRAVEL 2024).

Like many other global destinations, Uzbekistan was not immune to the impacts of the COVID-19 pandemic (DITTMANN 2024b). Travel restrictions imposed worldwide led to a significant decline in the country's tourism and hospitality revenues. To mitigate these negative effects, the government introduced a multi-stage recovery program titled “Uzbekistan. Safe Travel Guaranteed” (ALLABERGANOV, PREKO, MOHAMMED 2021). In the first stage, post-pandemic policies focused on supporting tour operators and businesses that had suspended operations. Domestic tourism was gradually reintroduced under strict travel and health regulations, with regions classified as yellow or green zones depending on quarantine status. In the second stage, regional tourism—particularly within the Commonwealth of Independent States (CIS)—resumed under strict sanitary and travel protocols. Finally, in the third stage, international travel was reinstated, beginning with countries that demonstrated favorable epidemiological conditions. Overall, these recovery measures helped stabilize the tourism sector, restored confidence among travelers, and maintained Uzbekistan's positive international image (SAIDMAMATOV, MATYAKUBOV, DAY, MARTY, KHODJANIYAZOV, IBADULLAEV, BEKJANOV, MATNIYOZOV, MATYUSUPOV 2021).

Following the pandemic, Uzbekistan successfully reestablished its tourism and hospitality industry, though foreign tourist arrivals initially remained below pre-pandemic levels. For instance, while more than 6 million international tourists visited Uzbekistan in 2019, the number dropped to approximately 2 million in 2021 before rebounding to 5 million in 2022. Despite these fluctuations, the government remains committed to the long-term development of the tourism sector. In 2023, Uzbekistan signed visa-free travel agreements with over 90 countries, expanded hotel room capacity from 20,200 in 2018 to over 64,000 in 2025, and modernized its transportation infrastructure, including international airports (U.S. DEPARTMENT OF COMMERCE 2023).

Finally, recognizing the growing potential of Muslim pilgrimage and Islamic tourism, Uzbekistan has invested in developing this niche market, aiming to attract up to one million Muslim visitors annually. For instance, sites such as the Imam Bukhari Memorial Complex in Samarkand can be further capitalized on as major Muslim pilgrimage destinations (BULAI, EVA, ROSU 2016). Reflecting these efforts, the Organization of Islamic Cooperation (OIC) ranked Uzbekistan 13th globally in its Global Travel Index 2023 (U.S. DEPARTMENT OF COMMERCE 2023).

Therefore, it is evident from the development and promotion of the tourism sector that Uzbekistan is making substantial progress in capitalizing on this industry as a driver of economic growth and international recognition (UL HAQ ET AL. 2024). Considering that Muynak was one of the towns most severely affected by the Aral Lake crisis, and has only recently drawn the attention of Uzbek authorities as a potential tourism development zone (GOV.UZ 2025), it becomes essential to analyze its emerging tourism initiatives. This analysis seeks to identify Muynak's transformation into a dark tourism site and to examine its impact on local communities as well as their attitudes toward further development.

2.3 Dark tourism

2.3.1 Definition and Concept

Whether through religious pilgrimages to sites associated with death and sacrifice, ancient Roman gladiatorial games at the Colosseum, or public executions, visiting places connected with death and tragedy is not a new phenomenon (BEECH 2000; STONE 2005; HARTMANN ET AL. 2018). In fact, humans have engaged in visiting such sites throughout history, with early literature documenting this practice explicitly (SEATON 1996; LIGHT 2017).

In the postmodern era, CHRIS ROJEK (1993) was among the first to conceptualize this phenomenon, observing in his book *Ways of Escape: Modern Transformations in Leisure and Travel* that people were increasingly drawn to heritage sites associated with death, tragedy, and suffering—what he termed *black spots*. Prominent examples include Holocaust tourism (BEECH 2000), battlefield tourism (DUNKLEY ET AL. 2011), disaster tourism (RUCINSKA 2016) and slavery tourism (DANN, SEATON 2013), among others.

However, the reasons behind the growing appeal of visiting such sites remained largely unexplored until MALCOLM FOLEY and JOHN LENNON (1996) introduced the term *dark*

tourism in their influential article, “JFK and Dark Tourism: A Fascination with Assassination,” published in the *International Journal of Heritage Studies*. Their study sought to understand the motivations behind visits to the assassination site of U.S. President John F. Kennedy. Foley and Lennon argued that mass media coverage of historical tragedies stimulates public curiosity, encouraging people to experience sites of death and disaster firsthand. They defined dark tourism as a phenomenon that “encompasses the presentation and consumption (by visitors) of real and commodified death and disaster sites” (FOLEY, LENNON 1996: 198).

Building on the works of ROJEK (1993) and FOLEY and LENNON (1996), several scholars have further expanded the conceptual framework of dark tourism. STONE and SHARPLEY (2008) proposed that the growing fascination with dark tourism stems from the conditions of postmodern societies. In contemporary capitalist contexts, where commodification permeates all aspects of life and advancements in medicine have distanced individuals from the reality of death, death itself has become institutionalized and sanitized. Consequently, dark tourism offers a means for societies to re-engage with mortality by rendering death visible, tangible, and experiential once again.

Although dark tourism remains a relatively new field within tourism and hospitality studies, several recurring themes have emerged in the literature (STONE 2013). These can broadly be divided into two perspectives: the supply side and the demand side. The supply side focuses on ethical dilemmas in managing dark tourism sites, typologies of such sites, and local community perceptions. In contrast, the demand side examines tourist typologies and visitor motivations to engage with sites associated with death, tragedy, and suffering (LIGHT 2017).

2.3.2 Supplier aspect

The supplier aspect of dark tourism primarily concerns the ethical dilemmas faced by authorities, site managers, and other stakeholders in developing and managing dark tourism sites. The increasing attention toward visiting sites associated with death and tragedy, as well as their commodification, has raised numerous ethical questions in the tourism and hospitality literature (HUGHES 2008; LENNON 2017; MARTINI, BUDA 2020). These concerns were first articulated by FOLEY and LENNON (1996), the founders of dark tourism studies, who questioned how such sites should be appropriately managed, how their socio-economic impacts might affect communities, and how historical events should be accurately interpreted for both visitors and locals.

Control over dark tourism narratives—such as determining who are portrayed as victims and perpetrators—and the politicization of these sites have often made dark tourism a contested arena (LISCHER 2019). Histories and stories presented at dark tourism sites are generally regarded as authentic and reliable since they are typically curated by official governmental and non-governmental institutions such as museums and heritage organizations. On the positive side, this process allows governments to construct and reinforce national identity and collective memory (AMUJO, OTUBANJO 2012). Through dark tourism, both visitors and local residents can engage with national histories, fostering a sense of belonging and patriotism (TINSON ET AL. 2015).

However, this is not always the case. In some instances, narratives presented at dark tourism sites are influenced or distorted by various stakeholders, political agendas, or cultural values, leading to biased interpretations, victimization, or blame-shifting among different groups (STYLIANOU-LAMBERT, BOUKAS, BOUNIA 2015). For example, after Hurricane Katrina, some tour operators framed the disaster in a manner that blamed oil and energy companies—reflecting the governmental narrative—whereas local communities attributed responsibility to government mismanagement (LEWIS 2007).

The politicization of dark tourism is further complicated by geography and temporal context (STYLIANOU-LAMBERT ET AL. 2015). On the divided island of Cyprus, both the Turkish and Greek communities have developed dark tourism sites relating to the same historical conflict, yet each presents contradictory narratives to visitors (FARMAKI, ANTONIOU 2017). Consequently, such political influences and competing interpretations can create disputes over the authenticity of dark tourism sites (STYLIANOU-LAMBERT ET AL. 2015; LEWIS 2007), generate dissonance among stakeholders (SHARPLEY 2009), and in extreme cases, lead to open conflict (FARMAKI, ANTONIOU 2017).

Another important theme within the supplier aspect of dark tourism is the typology or forms of dark tourism sites. As identified by STONE (2006), seven principal categories exist: dark fun factories, dark exhibitions, dark dungeons, dark resting places, dark shrines, dark conflict sites, and dark camps of genocide. These categories span a continuum from the “lightest” to the “darkest” forms of dark tourism. According to STONE (2006), lighter forms such as dark fun factories tend to emphasize entertainment and commercial appeal, often with well-developed

infrastructure and minimal political or emotional engagement. In contrast, darker sites—such as conflict zones or genocide memorials—are typically associated with genuine historical events, deeper moral reflection, stronger ideological elements, and limited infrastructural development.

Finally, an essential component of the supplier aspect concerns the well-being and perceptions of local communities, particularly their views toward dark tourists and being the subjects of external observation. As with other forms of tourism, understanding community perceptions is vital for ensuring sustainable and ethical development. First, given that dark tourism remains a relatively new concept in many regions, local residents may lack awareness of its meaning and implications. Second, community attitudes toward dark tourism can vary according to demographic factors, geographic proximity, and temporal distance from the event itself. For example, communities that directly experienced a tragedy may be less supportive of tourism development than those more removed from it, despite potential economic benefits (KIM, BUTLER 2015).

Moreover, timing plays a crucial role in determining community acceptance. Scholars have emphasized that a certain period should elapse between a tragic event and the initiation of dark tourism development to avoid community dissonance and ethical concerns (DALE, ROBINSON 2011). Lastly, education represents a pivotal element in mitigating potential conflicts between tourists and local populations. By educating visitors about the cultural context, local traditions, and historical background of dark tourism sites, authorities can foster mutual respect and facilitate more meaningful and ethically sound experiences (MOSCARDO 1996).

2.3.3 Consumer aspect

If the ethical dilemmas and management of dark tourism sites constitute the major topics in the supplier aspect of dark tourism, typology and motivation are the central discussions in the consumer aspect. Since dark tourism sites vary in typology and market offerings, dark tourists and consumers are likewise heterogeneous and differ in their motivations to visit such sites. However, understanding the motivation behind visiting dark tourism sites remains one of the most complex and least studied areas in dark tourism literature due to the sensitive nature of the subject (ILIEV 2021).

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One of the earliest and most commonly accepted explanations for visiting dark tourism sites is the opportunity for meditation on life and death. In other words, dark tourists have the chance to reflect on mortality and the value of life by engaging with sites associated with death and destruction (STONE 2013). This phenomenon has been further explored in studies of dungeon-style attractions in the United Kingdom, where dark tourists demonstrated diverse reflections on life and death—ranging from confronting their own inevitable mortality to safely observing death from a distance (LIGHT, IVANOVA 2022).

Theoretically, RAINE (2013) proposed nine typologies of dark tourists, with four main motives for visiting dark tourism sites, represented along the dark tourism spectrum. The first motive is devotion, in which visitors seek to remember and mourn. This motive lies on the darkest end of the spectrum, and such tourists are often identified as mourners or pilgrims. Slightly lighter on the spectrum is the experience motive, where visitors are not personally attached to the site but visit out of morbid curiosity or for the thrill of the experience.

Moving toward the lighter end of the spectrum is the discovery motive. Tourists in this category—often referred to as information seekers or hobbyists—are primarily interested in acquiring knowledge about the history and context of tragic events. The lightest form of motivation is incidental, where tourists are only marginally engaged with the site and visit it unintentionally, often as sightseers, retreaters, or passive recreationists. RAINE (2013) maintains that the darker the motive for travel, the more psychologically prepared and emotionally involved the tourist tends to be, whereas lighter motivations indicate more detached and spontaneous visits.

Empirical studies have identified curiosity and education as the most prevalent motivations for dark tourism visits (CHANG LIHUI 2017; ISAAC ET AL. 2019; NHLABATHI, MAHARAJ 2020; PANAYIDOU ET AL. 2024). For example, at the Apartheid Museum in South Africa, visitors were primarily motivated by curiosity, a desire to learn about the country's history, and the intention to pay respect to victims. However, such educational and curiosity-based motivations vary across different demographic profiles (MANGWANE ET AL. 2019). Similar findings were reported in Nepal following the devastating earthquakes, where curiosity and educational purposes were dominant motives, alongside leisure and moral reflection, suggesting that motives can differ based on demographic and cultural factors (MIN ET AL. 2021).

Unlike other forms of tourism, dark tourism can also attract visitors seeking morbid reality and thrill. For instance, Chernobyl, the site of the 1986 nuclear disaster, remains one of the most infamous dark tourism destinations in the modern era. Tourists' motivations for visiting Chernobyl range from personal and historical connections to the region to the pursuit of adventure and thrill, often influenced by demographic characteristics. Notably, popular culture—such as post-apocalyptic survival video games like *S.T.A.L.K.E.R.*—has played a major role in stimulating younger tourists' interest in visiting the site (YANKOVSKA, HANNAM 2014).

In conclusion, the study of dark tourism remains a relatively modern yet diverse field encompassing various, sometimes conflicting, themes concerning both supplier and consumer aspects. Dark tourism sites differ in form and meaning, offering visitors a wide spectrum of experiences and reflections (LENNON 2017). It is therefore essential to manage ethical dilemmas—particularly those related to historical accuracy and narrative authenticity—to foster a sense of belonging and pride among both tourists and local communities. Conversely, the failure to manage such issues can lead to conflict, dissonance, and distortion of historical narratives (LEWIS 2007; SHARPLEY 2009; STYLIANOU-LAMBERT ET AL. 2015; FARMAKI, ANTONIOU 2017). Consumers of dark tourism are highly diverse in typology and motivation, ranging from curiosity and learning to thrill-seeking and confronting mortality, often shaped by demographic factors (YANKOVSKA, HANNAM 2014; CHANG LIHUI 2017; LIGHT, IVANOVA 2022; ISAAC ET AL. 2019; MANGWANE ET AL. 2019; NHLABATHI, MAHARAJ 2020; MIN ET AL. 2021; ILIEV 2021; PANAYIDOU ET AL. 2024). Finally, it is important to note that the overwhelming majority of dark tourism studies—especially those addressing ethical dilemmas, site typologies, community perceptions, and visitor motivations—have been conducted in Western, developed contexts. This reveals a significant research gap that should be addressed by expanding dark tourism scholarship into non-Western and developing country contexts.

2.4 Community perceptions

Tourism development does not occur in a vacuum; rather, it unfolds in specific locations and contexts with significant consequences, particularly for local communities. First and foremost, local communities must be aware of the type of tourism being developed in their areas (SAARINEN 2010). Awareness of tourism and hospitality development is essential for

enhancing community participation and engagement in decision-making processes. When local residents understand the nature and objectives of tourism initiatives, they are better positioned to establish communication channels with policymakers and businesses (TIMOTHY 2000). This, in turn, facilitates the creation of educational programs and capacity-building initiatives aimed at promoting sustainable tourism practices, ultimately strengthening community support for tourism development (CÁRDENAS ET AL. 2015).

Furthermore, the expansion of tourism can influence the very social fabric of these communities as well as their economic well-being (JUROWSKI ET AL. 1997; ANDERECK ET AL. 2005). Numerous studies in the tourism and hospitality literature have demonstrated that tourism development affects the economic, socio-cultural (SHARPLEY, TELFER 2002; GJERALD 2005), and environmental conditions of local populations (LIU ET AL. 1987). In some cases, these impacts are positive, leading to greater community support for tourism initiatives (GAUTAM 2023). In other cases, however, tourism development generates negative outcomes, resulting in hostility and resistance from residents. It is also worth noting that several studies have revealed complex dynamics in which, despite economic or socio-cultural benefits, certain aspects of tourism still provoke opposition among local communities (MCKERCHER 1993).

Tourism and hospitality research has identified several types of perceived economic, socio-cultural, and environmental impacts of tourism development on host communities. For instance, infrastructure improvements, employment opportunities, increased income, and higher living standards are among the major positive economic outcomes (ARCHER 1995; LIU, KIM, SONG 2022; ABDURAKHMANOVA, AHROROV 2025; GAYO, KATONGE 2025). Socio-culturally, tourism can foster pride in local culture and promote intercultural exchange (GJERALD 2005; AKOVA, ATSIZ 2019; BESCULIDES, LEE, MCCORMICK 2002), while environmentally, it can enhance awareness, education, and conservation initiatives (GHADERI, SHAHABI, FENNELL, KHOSHKAM 2022; ALLABERGANOV, CATTERALL 2023; YIN, FENG, JIA 2024).

However, the literature also highlights various negative consequences. For example, despite economic gains, tourism development can raise the cost of living for local residents through increased rent and land prices, as well as higher costs for water and other essential goods.

Socio-culturally, some residents may view tourism as a source of cultural conflict, where visitors disrespect local traditions or contribute to issues such as noise pollution and loss of authenticity due to infrastructure development (GJERALD 2005; AL HAIJA 2011; SHTUDINER, KLEIN, KANTOR 2018; AKOVA, ATSIZ 2019; ALAMINEH, HUSSEIN, MULU, TADDESSE 2023). Environmentally, tourism may lead to increased waste production and traffic congestion (WONG 2004; GARCÉS-ORDÓÑEZ, DÍAZ, CARDOSO, MUNIZ 2020; COMERIO, NAGAI, PACICCO, SERATI 2022). Therefore, tourism development is not uniformly positive; rather, it produces a heterogeneous mix of positive and negative outcomes that vary across communities (MCKERCHER 1993; MBAIWA 2005a).

Following the perceived impacts of tourism and hospitality development—such as economic, socio-cultural, and environmental factors—the perceived challenges of tourism development by local communities can also pose significant obstacles for policymakers and businesses. For example, local residents may be unaware of the policies and programs initiated by local governments to promote tourism development. Furthermore, challenges such as social and economic inequalities, as well as the limited distribution of tourism benefits among local communities, can hinder further tourism progress. In addition to these inequalities, local communities may also experience constraints due to corruption, lack of governmental support, and insufficient funding or financing. All of these challenges can alienate local communities and diminish their willingness to support tourism initiatives in their regions (SETOKOE, RAMUKUMBA 2020).

The overwhelming majority of tourism scholars argue that the development of the tourism industry in a particular location is heavily dependent on the perceptions and attitudes of local communities and indigenous populations (GURSOY, JUROWSKI, UYSAL 2002; REIMANN ET AL. 2011; STYLIDIS, BIRAN, SIT, SZIVAS 2014; LIANG, HUI 2016; NUNKOO, SO 2016; LAI, HITCHCOCK 2017; SU, HUANG, HUANG 2018; NGUYEN 2022; HAN ET AL. 2023; ŠERIĆ, PATRIZI, CECCOTTI, VERNUCCIO 2024; ŠEGOTA, MIHALIČ, PERDUE 2024; PHUONG, TRANG, QUY, QUYEN 2025). In other words, for tourism development to be successful, authorities and businesses must recognize potential consequences and actively consult with local residents to prevent future conflicts (SHENG, TSUI 2010; STRICKLAND-MUNRO ET AL. 2010). Such engagement enables policymakers

and businesses to formulate policies that align with community interests, rather than contradict them, by involving and empowering local populations in the development process. Ultimately, this participatory approach contributes to more equitable and sustainable tourism development (MBAIWA 2005a; OKECH 2010; ESLAMI ET AL. 2019; GARCÍA-BUADES, GARCÍA-SASTRE, ALEMANY-HORMAECHE 2022; BLACKIE, TSHOLETSO, KEETILE 2023; SOBCZAK, CHOMAĆ-PIERZECKA 2025).

2.5 Theoretical grounding

To study the phenomenon of tourism development and its potential impacts on local communities, various theoretical frameworks have been developed over the decades within tourism scholarship. Some of the most prominent include Social Exchange Theory (HOMANS 1958; BLAU 1960; EMERSON 1962; AP 1992), Empowerment Theory (RAPPAPORT 1984; ZIMMERMAN 1995; ROCHA 1997; SCHEYVENS 1999), Power Theory (RAVEN 1965; FOUCAULT 1988), and Social Representation Theory (MOSCOVICI 1984; DE PAOLIS 1990). Although all of these frameworks can be applied to examine tourism development and community attitudes, Social Exchange Theory (SET) is considered the most appropriate for this study for several reasons.

First and foremost, since tourism development inherently involves interaction between tourists and local communities, SET provides a useful lens through which to explain these social exchanges (ÖZEL, KOZAK 2017; CHANG 2021). Second, SET is one of the oldest and most empirically tested theories in tourism studies, rendering it highly reliable for analyzing interactions between tourists and host populations (NUNKOO, SO 2016). Third, while a substantial body of literature exists on tourism development, much of it has focused on developed countries, leaving a significant gap in research concerning developing and underdeveloped contexts. Finally, although SET has been extensively applied in tourism research to examine residents' perceptions of tourism development (WEAVER, LAWTON 2001; ANDERECK ET AL. 2005; CHOI, MURRAY 2010; LI, WAN 2017; ÖZEL, KOZAK 2017; KANG, LEE 2018; CHANG 2021; NGUYEN 2022; ALLABERGANOV, CATTERALL 2023), its application to dark tourism remains limited. This gap underscores the need for further exploration of how SET can be employed to understand the perceptions of local communities toward dark tourism development. Therefore, considering the factors

outlined above, SET is deemed the most appropriate theoretical framework for examining local communities' perceptions of dark tourism development in the Aral Lake area, with a specific focus on the town of Muynak.

2.5.1 Social Exchange Theory

Social Exchange Theory (SET) was first introduced by George C. Homans, widely recognized as the founder of the theory, in 1958 in his essay titled "Social Behavior as Exchange" published in the *American Journal of Sociology*. In this work, HOMANS (1958) and subsequently in his book *Social Behavior and Its Elementary Forms* (1961) proposed that social exchange constitutes an interaction between two parties or individuals, involving the exchange of tangible goods, such as money, or intangible goods, such as prestige and recognition. According to HOMANS (1961), both tangible and intangible goods determine the equilibrium between the interacting parties, which plays a crucial role in the continuation or termination of their interaction. For example, if one party provides greater value to the other while receiving little or no benefit in return, or alternatively gains significantly at minimal cost, the equilibrium is disrupted. This imbalance can lead to a reduction in interaction or even the complete termination of the relationship (HOMANS 1958; HOMANS 1961).

Since its inception, SET has been extensively utilized and critically examined by numerous scholars in sociology. Prominent contributors include PETER M. BLAU and RICHARD M. EMERSON. BLAU (1960) investigated the social relations among actors and how integration occurs through attractiveness and approachability. He further expanded on these ideas in 1964, exploring how individuals form complex structures through social relations. Building on these foundations, EMERSON (1962) studied power and influence in organizational behavior, concluding that equilibrium in social interactions fosters group cohesion and stability. Collectively, the works of HOMANS (1958, 1961), BLAU (1960), and EMERSON (1962) significantly shaped the development of SET.

Over subsequent decades, SET has been applied across multiple disciplines, becoming a leading interdisciplinary framework. In education, ELSTAD, CHRISTOPHERSEN, TURMO (2011) used SET to study social exchanges between teachers and principals, analyzing trust and organizational citizenship. In the field of Information Technology, SET has been employed to examine customer relationships and purchase intentions (CHOU, HSU 2016). In business and management, SET has been widely applied to explore employee-organization

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relationships, employee-supervisor interactions (CROPANZANO, PREHAR, CHEN 2002), business-to-business interactions (LAMBE, WITTMANN, SPEKMAN 2001), and human resource management and motivation (GOULD-WILLIAMS, DAVIES 2005). Furthermore, SET has been extended to studies in politics, economics, and socio-cultural research (NAKONEZNY, DENTON 2008).

In the context of tourism and hospitality, SET was first investigated and applied by AP (1992). Since then, it has become a widely adopted theoretical framework, often regarded as the “gold standard” for studying interactions between tourists and local communities and understanding their perceptions of tourism development (SHARPLEY 2014). Drawing on the foundational work of HOMANS (1958, 1961), BLAU (1960), and EMERSON (1962), AP (1992) sought to explain why local communities hold positive or negative perceptions of tourism development. He proposed a theoretical framework in which social exchange between community members and tourists occurs through four interconnected stages: need satisfaction, antecedents, forms of exchange relations, and consequences of exchange. These stages determine whether local communities support or distance themselves from tourism development.

The first stage, need satisfaction, involves actors possessing a rationale or motivation to engage in interaction. Without this motivation, actors tend to avoid entering the social exchange. Motivation can take the form of tangible assets, such as money, or intangible benefits, such as respect and prestige. When motivation exists, interaction proceeds to the second stage, antecedents. According to AP (1992: 673), antecedents are the opportunities and situations that facilitate interaction between tourists and local communities. These can either strengthen or hinder social exchange, depending on whether they are positive or negative.

The third stage, forms of exchange relations, evaluates power dynamics between the actors. Power relations can be balanced and rewarding, balanced but unrewarding, imbalanced but rewarding to one party, or imbalanced and unrewarding to both. For instance, balanced and rewarding exchanges benefit both parties, such as through financial gains for communities and satisfying experiences for tourists. In contrast, imbalanced or unrewarding exchanges can disadvantage one or both parties, leading to reduced interaction or even avoidance of tourism development (AP 1992).

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Finally, the consequences of exchange involve the evaluation of the interaction by both tourists and local communities. Positive outcomes in economic, socio-cultural, and environmental dimensions generally foster favorable perceptions and support for tourism development. Conversely, if benefits are absent, local communities may develop negative attitudes, potentially hindering tourism initiatives. AP (1992) emphasized that authorities and businesses must prioritize understanding local communities' perceptions to build trust and ensure sustainable tourism development.

SET has been applied in both western and non-western contexts, across developed and developing countries, often producing mixed or even conflicting results. In Australia's Gold Coast, for example, early studies revealed that community members' perceptions of tourism were divided into three groups: newcomers, who supported tourism; those who recognized economic benefits but remained neutral; and opponents, who were concerned about issues such as traffic congestion (WEAVER, LAWTON 2001). A decade later, similar patterns of mixed perceptions were observed in the same region (MOYLE ET AL. 2010a, 2010b).

In the United States, studies in Arizona and Texas found that local communities generally recognized the economic benefits of tourism but also reported negative impacts such as traffic, increased crime, and littering (ANDERECK ET AL. 2005; CHOI, MURRAY 2010). Similarly, another study that was conducted in Colorado, authors have confirmed the usefulness and applicability of SET by analyzing local communities perceptions of tourism development. It was discovered that place attachment were a significant predictor of tourism support in addition to positive and negative impacts of tourism development. It was highlight that the community involvement by the policy makers and businesses is an important predictor of successful tourism development (KANG, LEE 2018).

In non-western contexts, NUNKOO and RAMKISSOON (2012) demonstrated that community support in Mauritius depended on trust and equitable distribution of benefits. Similar patterns were observed in Turkey, where economic benefits led to positive perceptions, even when socio-cultural or environmental challenges were present (ÖZEL, KOZAK 2017). In Uzbekistan, local communities acknowledged economic gains from tourism, such as employment and business opportunities, with relatively benign negative perceptions primarily related to the management of tourism by authorities rather than to tourists themselves (ALLABERGANOV, CATTERALL 2023).

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Similar studies in Korea further confirmed the utility of SET in explaining local communities' perceived impacts of and support for tourism development. Specifically, local communities experienced both material (economic) and non-material (socio-cultural and environmental) impacts. Researchers recommended that policymakers consider both types of impacts equally to ensure long-term sustainable tourism development (HAN ET AL. 2023). Comparable findings were reported in China in a study of night tourism, emphasizing the critical role of education and communication in successful tourism development (WANG ET AL. 2023).

In terms of dark tourism development, SET has also been employed to explain the perceptions of local communities toward such forms of tourism. However, compared with other tourism contexts, there remains a noticeable gap in the application of SET to dark tourism sites, primarily because dark tourism is a relatively recent field of academic inquiry. For instance, in the dark tourism destination of Cyprus, SET was found useful in explaining residents' perceptions of tourism development. The study revealed that local communities viewed dark tourism as a positive transformation within their areas, with economic benefits emerging as a significant predictor of their overall support for further development (PANAYIDOU ET AL. 2024). Similarly, in a study conducted in a dark tourism site in China, SET was again found effective in explaining the perceptions of local residents and their support for dark tourism development (WANG ET AL. 2019).

Overall, SET has demonstrated that: (1) economic benefits are a key determinant of community support in both western and non-western contexts; (2) understanding local perceptions is critical for authorities and businesses to successfully develop tourism; and (3) negative perceptions, such as congestion and crime, tend to be more pronounced in developed countries, while in developing contexts they are often minor or manageable. However, there remains a significant gap in applying SET to dark tourism, particularly in cases of human-made disasters such as the Aral Lake crisis. Therefore, SET is considered the most appropriate framework to explore and understand the perceptions of local communities in Muynak regarding dark tourism development, its impacts, and their support for its future growth.

2.6 Literature review summary

Overall, it can be concluded that the Aral Lake was once one of the major lakes in Central Asia, serving as a vital source of economic, socio-cultural, and environmental well-being for local communities. Having been captured by the Russian Empire and later incorporated into the Soviet Union, Central Asia was transformed into an agricultural powerhouse of the Soviet

economy, particularly for cotton and rice production in the modern-day territory of Uzbekistan. To support this, extensive canals and irrigation systems were constructed to divert water to water-intensive cotton fields, which ultimately transformed what was once the world's fourth-largest lake into the Aralkum Desert. This ecological disaster left the Aral Sea basin in a dire situation, especially for local communities, resulting in severe employment loss and significant health issues.

Following the collapse of the Soviet Union, Uzbekistan has actively sought to mitigate the negative effects of the Aral Sea disaster through various initiatives and organizations, including the International Fund for Saving the Aral Sea (IFAS). In recent years, however, the tourism and hospitality industry has emerged as a promising sector for generating foreign revenue in this landlocked country. Consequently, Muynak has become a growing center of attention, following successful heritage tourism developments in Tashkent, Samarkand, Bukhara, and Khiva. Once a thriving fishing village on the former shores of the Aral Sea, Muynak was left devastated by the environmental catastrophe, suffering from economic collapse and public health challenges. Interestingly, it has recently been revitalized as a tourism and hospitality site, attracting an increasing number of domestic and international visitors.

Among the various forms of tourism, dark tourism appears to be the most suitable for Muynak's development, given its historical and environmental context. As tourism continues to develop, it inevitably produces socio-economic and cultural effects that shape local residents' perceptions and attitudes, which, in turn, influence their level of support for further tourism initiatives. Although several theories have been established to examine these dynamics, the Social Exchange Theory (SET) will serve as the main framework guiding this study to assess the perceived impacts and challenges of dark tourism in Muynak and the local community's overall support for it.

3.0 Methodology

3.1 Research Design

The Research Onion (RO) developed by SAUNDERS, LEWIS, THORNHILL (2007) was adopted to structure and discuss the research methodology and design used in this study (Figure 6). The model provides a systematic framework for exploring and explaining the perceptions of dark tourism development and its impacts among local communities in the town of Muynak. The RO is a widely recognized and extensively applied tool in research design, consisting of six distinct but interrelated layers that together define the overall research process. According to SAUNDERS et al. (2007), a successful research project requires the researcher to progress through these layers sequentially—much like peeling the layers of an onion—to arrive at a coherent methodological structure.

The six layers of the RO are commonly grouped into three main stages (SAUNDERS ET AL. 2007). The first stage encompasses the research philosophy and research approach, which form the two outer layers of the model. The second stage includes the next three layers—methodological choice, research strategy, and time horizon—which shape the research direction and implementation. Finally, the third stage involves the data collection and analysis process, which operationalizes the methodology and connects it to the research objectives (IOVINO, TSITSIANIS 2020).

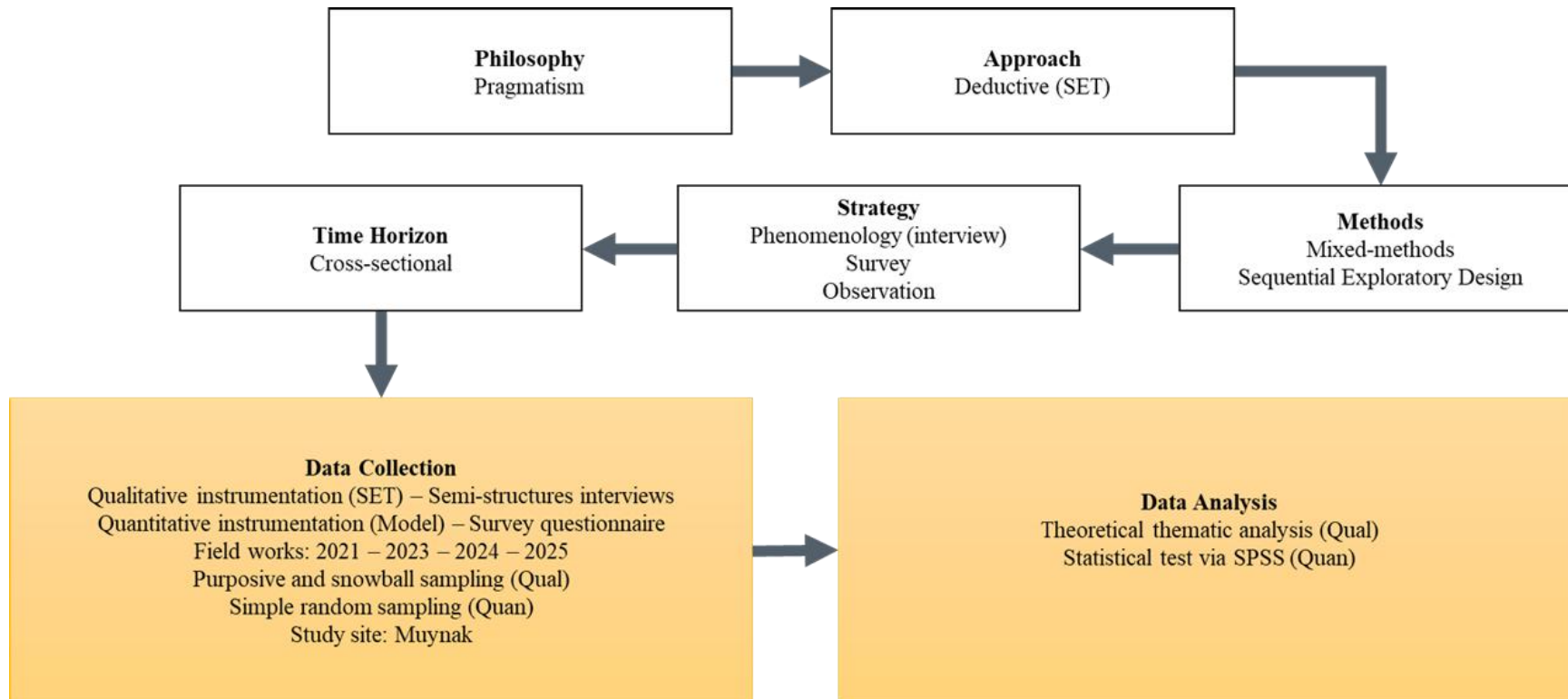
3.1.1 Philosophy and Approach

Research philosophy represents the first layer of the Research Onion model and concerns how reality is perceived and how knowledge about that reality can be collected, analyzed, and interpreted. It is largely shaped by the research questions, objectives, and the researcher's underlying philosophical assumptions. Several philosophical paradigms can guide a research project, with the most common being positivism, interpretivism, and pragmatism (SAUNDERS ET AL. 2007).

Given the mixed-method nature of this study—aimed at exploring and explaining local communities' perceptions of dark tourism development and its impacts in the town of Muynak—pragmatism was selected as the most suitable philosophical stance. Pragmatism recognizes that reality and knowledge are dynamic and can be understood through multiple

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Figure 6. Conceptual framework of the research design



Source: Draft A. ALLABERGANOV based on SAUNDERS ET AL. (2007)

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perspectives (ALTURKI 2021). In other words, from a pragmatic viewpoint, knowledge and reality may be viewed as both objective and subjective, depending on the research questions and objectives.

This philosophy is particularly relevant in the context of Muynak, where dark tourism development has evolved over several decades, allowing its impacts to be both empirically examined and socially interpreted. Furthermore, local communities' perceptions of tourism development are not homogeneous (PEARCE, MOSCARDO, ROSS 1991; BRIDA, OSTI, FACCIOLI 2011; NGUYEN 2022); they vary according to individual experiences and socio-cultural backgrounds. Pragmatism therefore provides the flexibility needed to combine quantitative and qualitative insights to achieve a holistic understanding of the phenomenon (SHAW, CONNELLY, ZECEVIC 2010).

Research approach constitutes the second layer of the Research Onion and determines how data will be collected, analyzed, and connected to existing theories. It essentially bridges the relationship between theory and empirical findings (SAUNDERS ET AL. 2007). Two primary approaches are commonly employed in research design: inductive and deductive (MALALGODA, AMARATUNGA, HAIGH 2018).

A deductive approach was chosen for this study for several reasons. First, the development of tourism and hospitality as an academic field is well established, with numerous theories and frameworks having been previously developed and tested (ATELJEVIĆ 2014; TASCI 2020). Second, the topic of local communities' perceptions and the impacts of tourism development has been extensively researched (SHARPLEY 2014), providing a strong theoretical foundation. However, most existing studies have focused on other forms of tourism, leaving a gap concerning dark tourism, particularly within developing country contexts (STONE 2013; RAJASEKARAM ET AL. 2022). Therefore, the deductive approach is appropriate for this research, as it enables the adaptation and testing of established theoretical framework—specifically Social Exchange Theory (SET)—to guide the design of research instruments, data analysis, and interpretation of findings.

3.1.2 Methods, Strategy, and Time Horizons

Methods represent the third layer of the Research Onion model adopted in this study. Research methods can take various forms; however, in tourism and hospitality research, the three most

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commonly applied are qualitative, quantitative, and mixed methods—the latter combining both qualitative and quantitative approaches (SAUNDERS ET AL. 2007). In line with the pragmatic research philosophy discussed previously, this study employs a mixed-methods approach to collect, analyze, and interpret data on local communities' perceptions of dark tourism development and its impacts in the town of Muynak. This approach enables the researcher to capture both objective (quantitative) and subjective (qualitative) dimensions of the phenomenon (FEILZER 2010; SHAW ET AL. 2010).

In essence, mixed methods integrate textual and numerical analyses to provide a more holistic understanding of the research topic. Such integration can follow either a sequential exploratory design—where qualitative data collection precedes quantitative analysis to refine or validate emerging insights—or a sequential explanatory design, where quantitative data are collected first and subsequently explained through qualitative inquiry (CRESWELL, CLARK 2017). Mixed-method designs are particularly advantageous in tourism studies, as they generate rich, multifaceted data that allow for deeper and more nuanced interpretations (HUANG, ZAN, LV, ZHAO 2025).

In this research, a sequential exploratory design was adopted. The study begins with qualitative data collection, addressing the first and second research questions through formal, recorded interviews with experts, complemented by informal interviews with local community members and field observations conducted in Muynak. These qualitative findings are then analyzed and used to develop a conceptual model that illustrates how dark tourism impacts community support for tourism development in Muynak. Subsequently, this model is tested and validated through quantitative analysis, based on data gathered via structured questionnaires administered to local residents. This two-phase process ensures that the research findings are both theoretically grounded and empirically validated, enhancing the robustness and credibility of the study.

The fourth layer of the Research Onion (RO) model is research strategy. Commonly used strategies in tourism and hospitality research include experiments, surveys, case studies, ethnographies, phenomenology, action research, and narrative inquiry (SAUNDERS ET AL. 2007). In this study, and consistent with the mixed methods design, phenomenology—implemented through formal interviews, informal interviews, and field observations—and

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surveys were chosen to guide the qualitative and quantitative components, respectively (GREEN, DUAN, GIBBONS, HOAGWOOD, PALINKAS, WISDOM 2015).

Phenomenology focuses on understanding individuals' lived experiences in relation to a specific phenomenon. This approach is particularly suited to this research, as it enables the collection of rich and in-depth data capturing the perceptions and experiences of the local communities in Muynak regarding the development and impacts of dark tourism. However, phenomenological research can be highly subjective, which may limit the generalizability of its findings (MAYOH, ONWUEGBUZIE 2015). To address this limitation, a quantitative survey is employed in the subsequent phase, building upon the insights gained from the phenomenological stage to validate and strengthen the results (LIM 2025).

The fifth layer of the Research Onion (RO) model is the time horizon, which determines the period over which data are collected. Data collection can follow either a cross-sectional or a longitudinal approach (SAUDERS ET AL. 2007). In a longitudinal design, data are gathered over an extended period to examine changes in participants' behaviors or attitudes over time. Although this approach provides valuable insights into trends and developments, it is often time-consuming and requires substantial resources and commitment (WHITE, ARZI 2005).

Given the objectives and scope of this study, a cross-sectional time horizon was selected for collecting both qualitative and quantitative data in the town of Muynak. The cross-sectional approach involves gathering data at a specific point in time (RINDFLEISCH, MALTER, GANESAN, MOORMAN 2008), allowing the researcher to capture a snapshot of the perceptions of local communities toward the development of dark tourism. This approach is particularly suitable for the present study, as it facilitates the generation of descriptive and analytical insights within a manageable timeframe while maintaining methodological rigor (HUNZIKER, BLANKENAGEL 2024).

3.1.3 Data Collection and Analysis

The sixth and final layer of the Research Onion (RO) model is data collection and analysis. At this stage, several critical methodological decisions are made, including the design of research instruments, sampling strategies, data collection procedures, and the analytical techniques applied to both qualitative and quantitative data. This layer ensures that the research is conducted systematically and that the data obtained effectively address the research questions and objectives (SAUNDERS ET AL. 2007).

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Accordingly, this section is organized into two main parts. The first part discusses the qualitative phase of the study, covering the development of instruments, sampling approach, data collection, and analytical procedures. The second part presents the corresponding details for the quantitative phase, including the design of the questionnaire, sampling method, data collection process, and techniques used for statistical analysis.

Qualitative Instrumentation

To collect qualitative data through semi-structured interviews and to analyze the perceptions of local communities regarding the development and impacts of dark tourism in the town of Muynak, a set of open-ended interview questions was designed. These questions were developed in alignment with the Social Exchange Theory (SET) (AP 1992; WEAVER, LAWTON 2001; ANDERECK ET AL. 2005; ANDRIOTIS 2005; MOYLE ET AL. 2010a; 2010b; CHOI, MURRAY 2010; NUNKOO, RAMKISSOON 2012; ÖZEL, KOZAK 2017; KANG, LEE 2018; WANG ET AL. 2019; ESLAMI ET AL. 2019; HAN ET AL. 2023; WANG ET AL. 2023; PANAYIDOU ET AL. 2024), which serves as the main theoretical framework guiding this study.

The semi-structured interview guide was organized into five main categories to ensure comprehensive coverage of the research objectives.

Category 1: Focused on obtaining demographic information and understanding the extent of each respondent's involvement or experience with dark tourism development in Muynak. Establishing this background helped contextualize their perceptions.

Category 2: Included questions exploring the historical development of tourism in Muynak, from the Soviet era to the present day. Respondents were asked when and how tourists began visiting the town and which areas were most frequently visited.

Category 3: Examined the motives and reasons behind both local engagement in tourism and visitors' interest in dark tourism, allowing for open-ended discussion and deeper insights.

Category 4: Addressed opportunities and barriers related to dark tourism development and interaction with tourists. This helped identify potential challenges faced by the community and stakeholders.

Category 5: Focused on the socio-economic and environmental impacts of dark tourism in Muynak, encouraging reflective dialogue on perceived benefits and drawbacks.

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All questions were intentionally kept narrow in scope and logically ordered to maintain consistency and clarity during the interviews. This structured approach ensured that each interview generated data relevant to the research objectives and supported systematic qualitative analysis, as discussed in the following section.

Qualitative Sampling

This study employed a non-probabilistic sampling method to gather qualitative data, which is a common and suitable approach for qualitative research. Non-probabilistic sampling provides flexibility when the target population is difficult to access or limited in size (GUEST, BUNCE, JOHNSON 2006). In this approach, not every individual in the population has an equal chance of selection; instead, participants are chosen based on specific characteristics or relevance to the research objectives.

Among the five primary non-probabilistic sampling techniques—convenience, quota, self-selection, snowball, and purposive sampling—this study adopted purposive sampling, the most frequently used approach in qualitative research. Purposive sampling enables the researcher to collect information from individuals who are knowledgeable and experienced regarding the phenomenon under investigation (SAUNDERS ET AL. 2007). Given that this research focuses on local perceptions of dark tourism and the transformation of the Aral Lake region—a geographically remote and logistically challenging area—purposive sampling was deemed both appropriate and practical.

To ensure that the purposive sampling strategy yielded relevant and high-quality data from semi-structured interviews, several selection criteria were applied:

1. Residence: Participants were required to be permanent residents of Muynak, ensuring that their views reflected genuine local perspectives.
2. Age: Respondents had to be 18 years or older to provide informed and reliable accounts.
3. Experience: Participants needed to have at least one year of experience or partial involvement in Muynak's dark tourism sector—such as through employment, entrepreneurship, or academic research.

Applying these criteria ensured sample homogeneity, a critical factor in achieving data saturation (BODDY 2016). Purposive sampling was further supported by snowball sampling. In the snowball approach, when potential participants are difficult to reach, they can be referred or contacted through individuals who have already participated in the study (CRESWELL

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1998). In this research, some participants were recruited through this method, supplementing the purposive sampling strategy.

In qualitative research, sample sizes are typically smaller than in quantitative studies. Prior literature suggests ranges between 5 and 25 participants (CRESWELL 1998), 12 participants (GUEST ET AL. 2006), or a minimum of 15 participants, regardless of the methodological approach (BERTAUX 1981). In dark tourism studies, KIM and BUTLER (2015) achieved data saturation with as few as six face-to-face interviews supplemented by field observations. The concept of data saturation, also known as theoretical saturation (GLASER, STRAUSS 1967), is widely accepted as the gold standard for determining sample size in qualitative research (FRANCIS, JOHNSTON, ROBERTSON, GLIDEWELL, ECCLES, GRIMSHAW 2010). Data saturation occurs when additional interviews no longer yield new insights, and themes begin to repeat, thereby preventing redundant data collection (HENNINK, KAISER 2022).

However, achieving data saturation can be challenging. The process is sometimes criticized for being vague or inconsistently applied (GUEST ET AL. 2006; HENNINK, KAISER 2022). Several factors influence saturation (BODDY 2016), including:

1. Population homogeneity: Homogeneous groups reach saturation with fewer interviews than heterogeneous ones.
2. Research scope: Narrow, well-defined research questions enable quicker saturation.

To ensure a systematic and transparent approach, this study employed the stopping criterion method developed by FRANCIS ET AL. (2010). This method is especially suitable for theory-driven research, such as the present study guided by SET. It involves defining an initial sample size and continuing data collection until no new information emerges. For example, FRANCIS ET AL. (2010) began with 10 participants and added three more to confirm saturation, also reporting the frequency of new codes per interview.

A review of methodological literature indicates that larger samples do not necessarily yield higher-quality data; instead, emphasis should be placed on the depth and richness of information (HENNINK, KAISER 2022). Empirical evidence shows that saturation is typically achieved with 6 to 21 interviews, especially in phenomenological and theory-driven studies (GUEST ET AL. 2006; BODDY 2016).

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Accordingly, this study conducted 18 semi-structured, open-ended interviews with Muynak residents between April 20 and May 4, 2024. The initial target was 12 interviews, followed by two additional sets of three interviews to confirm data saturation. Saturation began to emerge around interview 6, as key codes and themes were repeatedly observed. To ensure reliability and thematic completeness, additional interviews were conducted. By interview 11, no new codes appeared; however, seven more interviews were carried out as a confirmatory measure to strengthen data validity.

Qualitative Data Collection

To obtain the necessary qualitative data for this study, three separate fieldwork visits were conducted between 2021 and 2024. These field visits combined observations, informal interviews, and formal semi-structured interviews to explore the perceptions of local communities regarding the development and impact of dark tourism in Muynak.

The first fieldwork was carried out between September 18 and 21, 2021, during a three-day visit to Muynak. This initial stage focused on preliminary observations and informal conversations with local residents to gain a general understanding of the area and community dynamics. Field notes were taken throughout the observation process, while informal interviews aimed to familiarize the researcher with the local context and to establish rapport with potential participants. These early observations and interviews provided valuable insights that later informed both the literature review and the design of the research instruments, particularly in developing the consent forms and interview questions. Moreover, the initial contacts made during this stage proved useful in preparing for the second fieldwork phase.

The second fieldwork took place between April 21 and May 4, 2023, and involved more extensive observations and informal interviews across a broader area of Muynak. During this phase, the researcher also visited the former Aral Lake basin to observe the dissected lakebed and interact with local fishermen, providing deeper contextual understanding of the town's economic and environmental conditions. Approximately 30 informal interviews were conducted during this period to build relationships and identify potential participants for formal interviews in the final fieldwork stage. All 30 individuals expressed willingness to participate in formal, recorded interviews at a later date.

The third and final fieldwork was conducted between April 20 and May 4, 2024, marking the culmination of the qualitative data collection phase. This stage combined additional field observations with formal, face-to-face semi-structured interviews. Observations focused on

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tourism products and services available to visitors, including guesthouses, hotels, and restaurants, to document the existing state of tourism infrastructure and experiences offered to tourists. Detailed field notes were collected to create maps and descriptive records of the study site.

Out of the 30 potential interviewees identified during the previous fieldwork, 20 individuals consented to participate in formal recorded interviews, under the condition that the discussions remain private and anonymous due to the sensitive nature of the topic and local social norms. Of these, 18 interviews were ultimately included in the analysis; one was excluded due to insufficient detail, and another was incomplete.

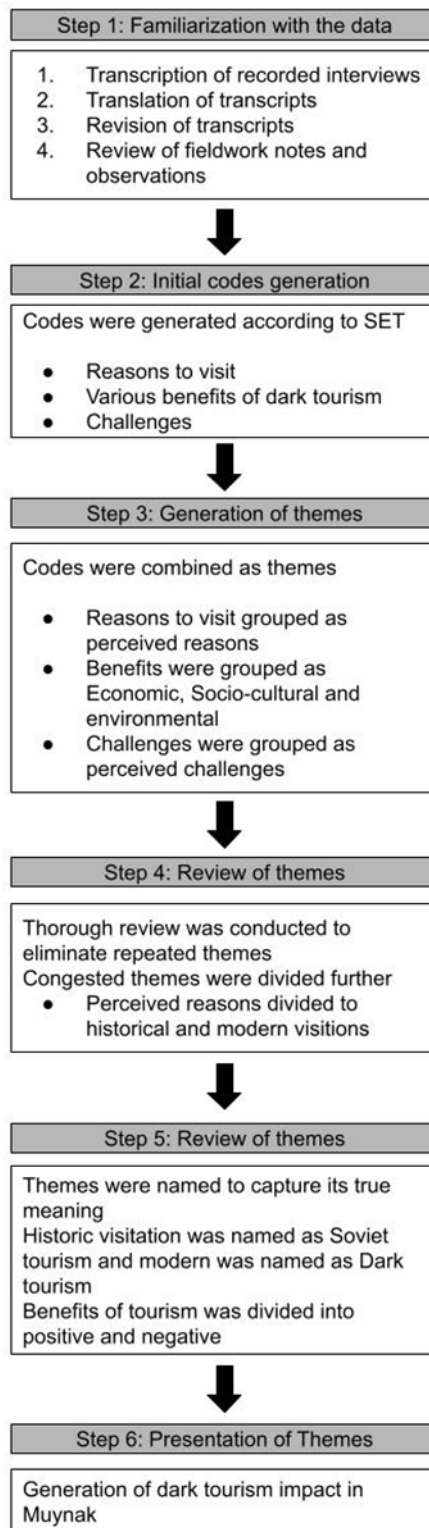
Qualitative Data Analysis

The qualitative data from the recorded semi-structured interviews were analyzed using thematic analysis, a widely used method in qualitative research. Thematic analysis can be conducted in two principal ways: inductively or theoretically (deductively). In inductive thematic analysis, themes are generated from the data itself without reference to pre-existing theory; the analysis is therefore data-driven. In contrast, theoretical thematic analysis is guided by pre-established theoretical constructs and seeks to answer specific research questions or test theoretical propositions.

Following the study's deductive approach, a theoretical thematic analysis was selected to examine local communities' perceptions of dark tourism development, its impacts, and the associated challenges and opportunities in Muynak. The six-step procedure proposed by BRAUN and CLARKE (2006) was used to structure the analysis: (1) data familiarization, (2) coding, (3) theme development, (4) reviewing themes, (5) naming themes, and (6) producing results (Figure 7).

In the first step (data familiarization), all recordings were listened to multiple times to ensure clarity and completeness. Each interview was transcribed verbatim in the language in which it was conducted (Uzbek, Karakalpak, or Russian) using Microsoft Word. After transcription, transcripts were read and re-read to verify accuracy and to begin identification of preliminary ideas and patterns. Subsequently, transcripts were translated into English and reviewed again several times to confirm translation fidelity and ensure that nuances in meaning were preserved. These iterative readings of the translated transcripts, together with field notes and observation records, established a strong familiarity with the data and prepared the material for systematic coding in the next phase.

Figure 7. Conceptual framework of thematic analysis



Source: Draft A. ALLABERGANOV based on BRAUN and CLARK (2006)

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In the second step of the theoretical thematic analysis, initial codes were generated from the transcribed interviews. As this study adopted a theoretical approach, all codes were developed in alignment with the Social Exchange Theory (SET), which serves as the overarching analytical framework. Coding was initially conducted through close reading of the transcripts. Although manual coding using hard copies and highlighters can be effective, the process was made more systematic and efficient by employing QDA Miner Lite software. Each segment of data relevant to the research questions or theoretical constructs of SET was highlighted and color-coded according to its meaning and context. For instance, various reasons for visiting dark tourism sites in Muynak were highlighted in grey to distinguish them from other codes. By the end of this stage, all meaningful units of text were coded, categorized, and visually represented through color differentiation, allowing for clearer identification of relationships between codes. The entire coding process was reviewed multiple times to ensure consistency and accuracy.

In the third step, codes sharing similar meanings were grouped and merged to form initial themes. This process involved examining relationships among codes and clustering them under broader conceptual categories. Using QDA Miner Lite, the previously color-coded segments were reorganized into higher-order themes based on semantic similarity and theoretical relevance. For example, all codes referring to reasons for visiting Muynak's dark tourism sites were consolidated under one theme labeled "Motivations for Visiting Muynak." Similarly, other clusters emerged, reflecting themes such as political, economic, socio-cultural, and environmental impacts of dark tourism development, as well as opportunities and challenges associated with it. These initial themes provided the foundation for further refinement in subsequent stages of thematic analysis.

Following the initial generation of themes, the fourth step of the theoretical thematic analysis involved a comprehensive review and refinement of the preliminary themes to ensure internal consistency and conceptual clarity. First, all codes within each theme were re-examined to verify that they accurately represented the meaning and scope of that particular theme. In other words, the researcher assessed whether the grouped codes truly supported the thematic concept or required modification. Each theme was then reviewed for coherence and balance to avoid overgeneralization or the inclusion of unrelated ideas. When a theme contained conceptually diverse or inconsistent codes, it was divided into two or more distinct themes to capture the underlying patterns more precisely. For instance, the theme initially labeled "Motivations for Visiting Muynak" was later separated into two sub-themes—historical visitation motives and

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modern dark tourism motives—reflecting the evolving nature of tourist interests from heritage-based to dark tourism-oriented attractions.

In the fifth step, the themes were refined, finalized, and named based on their conceptual essence. Each theme was reviewed to ensure it told a distinct and coherent story that contributed meaningfully to the overall research objectives. For example, the theme “modern visitation motives” was refined and renamed “Dark Tourism,” as it reflected tourists’ engagement with sites associated with the Aral Lake disaster and environmental degradation. Conversely, “historical visitation motives” was renamed “Soviet Tourism,” referring to earlier, pre-desiccation visits to Muynak for recreation and cultural purposes. Other themes—such as those addressing economic, socio-cultural, and environmental impacts—were subdivided to reflect both positive and negative dimensions, resulting in more nuanced thematic categories (e.g., Economic Benefits vs. Economic Constraints).

Finally, the sixth step involved the development of a conceptual framework and model that synthesized the relationships among the finalized themes. This stage transformed the qualitative findings into a structured theoretical representation of how local communities in Muynak perceive the development and impacts of dark tourism, and how these perceptions influence their support for future tourism initiatives. The finalized themes were visually presented and discussed in the Results chapter in the form of conceptual diagrams and thematic summaries, illustrating the perceived impacts of dark tourism development and the community’s overall support dynamics.

Quantitative Instrumentation

To collect the necessary quantitative data on local communities’ perceptions of the impacts of dark tourism development and their overall support for it, a structured survey was designed. The survey questions were developed based on insights from the qualitative stage and relevant literature. Similar to the qualitative phase, the survey was organized into three main categories to maintain focus and clarity.

The first category focused on the development of tourism in Muynak. It was further divided into two parts: the development of Soviet-era tourism, followed by the emergence of dark tourism. Questions in this category were primarily derived from the findings of the qualitative interviews, ensuring relevance to the local context.

The second category addressed the perceived economic, socio-cultural, and environmental impacts of dark tourism, as well as the challenges associated with its development in Muynak.

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Questions in this category were informed by both the qualitative findings and the distant literature, including frameworks from Social Exchange Theory (SET) (e.g. AP 1992; WEAVER, LAWTON 2001; ANDERECK ET AL. 2005; ANDRIOTIS 2005; MOYLE ET AL. 2010a; 2010b; CHOI, MURRAY 2010; NUNKOO, RAMKISSOON 2012; ÖZEL, KOZAK 2017; KANG, LEE 2018; WANG ET AL. 2019; ESLAMI ET AL. 2019; HAN ET AL. 2023; WANG ET AL. 2023; PANAYIDOU ET AL. 2024).

The third category collected demographic information from respondents. Placing demographic questions at the end allowed respondents to first engage with the substantive survey items, minimizing potential discomfort or sensitivity that might arise from asking for personal information at the outset.

To ensure clarity and readiness for field implementation, the questionnaire underwent pilot testing with 30 residents of Muynak in April and May 2025. Half of the participants (n = 15) completed the survey in paper format, while the other half completed it online, ensuring the questionnaire was suitable for both modes of administration. Feedback from the pilot test informed several improvements:

1. The total number of questions was reduced to shorten the survey and improve response rates.
2. Sensitive questions related to the local political context were either removed or reworded.
3. Certain questions were simplified or broken into smaller components to enhance clarity and comprehension for respondents.

These adjustments ensured that the survey was both contextually appropriate and methodologically robust for collecting quantitative data from the local communities in Muynak.

Quantitative Sampling

For the quantitative phase of this study, probability sampling, also referred to as random sampling, was employed to collect survey data on local communities' perceptions of the impacts and challenges of dark tourism development in Muynak, as well as their overall support for it. Probability sampling ensures that every member of the target population has a known and non-zero chance of being selected, providing a representative sample. Among the different probability sampling techniques—such as simple random sampling, stratified sampling, and

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cluster sampling—simple random sampling was chosen for this study. This choice was based on two main considerations: the relatively large sample size in the hundreds, and the geographically concentrated population within the town of Muynak (SAUNDERS ET AL. 2007; LOHR 2021). The required sample size was calculated to be 374 respondents from a total population of approximately 13,000 residents. This calculation, performed using the Raosoft Sample Size Calculator, employed a 5% margin of error and a 95% confidence level, ensuring the sample size is adequate for reliable statistical analysis.

Quantitative Data Collection

The quantitative data collection was conducted during the fourth and final fieldwork in Muynak, primarily in July 2025. While the previous three fieldwork phases focused on qualitative methods such as interviews and observations, this phase aimed to gather quantitative data to complement and validate the earlier findings. The process was facilitated with the help of local gatekeepers and guides, whose assistance was crucial for reaching potential participants, as trust is essential when collecting data from community members. Established contacts and relationships from earlier field visits made coordination and survey administration smoother. Prior to beginning data collection, the researcher explained the purpose and objectives of the study to the local assistants, who accompanied the researcher throughout the survey process.

Approximately 400 questionnaires were distributed among randomly selected residents of Muynak. Of these, 214 were returned completed, and after verifying accuracy and completeness, 191 responses were retained for the final analysis. Questionnaires that were incomplete or contained unclear answers were excluded. Most participants completed the survey in person on paper, while a smaller portion responded online. Although the main data collection took place in July 2025, several additional online responses were received through August and early September, extending the overall data collection period to early September 2025.

Quantitative Data Analysis

All 191 survey responses, collected both on paper and online, were first entered into Google Forms. The data were then exported as an Excel file, cleaned, and prepared for analysis before being imported into SPSS (version 31). In SPSS, further cleaning and adjustments were made, including labeling variables and refining survey items for clarity. Items used as attention checks were removed, and similar items were combined to enhance consistency.

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Descriptive statistics were initially conducted to summarize the demographic characteristics of the respondents and to calculate key measures, such as means and standard deviations, for the study variables. These results are reported in detail in the analysis chapters.

Following descriptive analysis, factor analysis was employed to identify the underlying dimensions of the data and determine the most meaningful factors. Reliability and validity checks, including the calculation of composite reliability (CR) values, were also performed, alongside normality tests to ensure the appropriateness of the data for further analysis. Once the factor structure was confirmed, multiple linear regression analysis was conducted to examine the influence of economic, socio-cultural, and environmental factors on community support for tourism. This process enabled a rigorous evaluation of the research hypotheses and ensured that the quantitative analysis was both systematic and aligned with the study's objectives.

3.2 Ethical Considerations

Strict ethical procedures were followed throughout both the qualitative and quantitative phases of this study to ensure the protection, confidentiality, and well-being of participants. This was particularly important given the political sensitivity of the area following the Karakalpak protests in 2022 (HORÁK, LEPIČ 2025), which made data collection challenging.

In the qualitative phase, prior to conducting interviews during the three fieldwork stages, participants were fully informed about the study's objectives and procedures. They were advised that they could withdraw from the interview at any time or skip questions if they felt uncomfortable. Participants were assured that all information would remain confidential and that recordings and transcripts would be securely stored. Only coded results were used for analysis, rather than full transcripts. While some participants agreed to audio recordings, others preferred a speech-to-text approach, allowing for immediate transcription without recording. All participants signed confidentiality agreements prior to participating.

In the quantitative phase, similar ethical protocols were applied. Survey instructions clearly outlined the purpose of the study and assured participants that their responses and personal information would remain confidential and coded. Data were used solely for research purposes, and no identifiable information was disclosed publicly. Examples of these instructions and measures for data protection are included in the appendices. These procedures ensured that all data collection was conducted responsibly, with respect for participants' privacy and adherence

to ethical research standards (WILES, CROW, HEATH, CHARLES 2008; TOBAR, CUNEEN 2020).

3.3 Methodology Summary

To investigate the development of dark tourism in Muynak and to assess local communities' perceptions of its impacts, challenges, and support for its further development, this study adopted a mixed-methods approach—specifically, a sequential exploratory design combining qualitative and quantitative methods. The research was grounded in pragmatist philosophy and guided by deductive reasoning. Data were collected within a cross-sectional timeframe, focusing on a specific period through semi-structured formal and informal interviews, field observations, and surveys.

The qualitative phase was conducted first, employing purposive sampling assisted by snowball sampling. Data saturation was achieved after 18 formal semi-structured interviews, while 30 informal interviews were used to provide contextual depth. The interview data were transcribed and analyzed using QDA Miner Lite software following a theoretical thematic analysis approach. The findings from this qualitative stage, together with insights from the Social Exchange Theory (SET) literature, informed the design of the quantitative survey used in the second phase.

In the quantitative phase, 191 valid responses were collected through random sampling and analyzed using SPSS version 31. Given the politically sensitive environment in the Aral Sea region, strict ethical protocols were observed, ensuring all participants' confidentiality and anonymity. The detailed results and interpretations of both the qualitative and quantitative analyses are presented in Chapter 4.

4.0 Results

4.1 Qualitative Demographics

According to the analysis (Table 1), the majority of experts who provided insights into the development of dark tourism in Muynak, along with its perceived impacts, challenges, and potential for further development, were male. Specifically, 13 respondents were male and 5 were female. This gender imbalance largely reflects the reality that most professionals involved in the tourism and hospitality industry in Muynak are men. Additionally, female participants tended to be more hesitant to engage in interviews with an external researcher compared to their male counterparts.

The ages of the expert respondents ranged from 26 to 75 years, offering a broad spectrum of perspectives across different generations. This diversity enriched the findings, providing a nuanced understanding of the topic. All interviewees were involved in the tourism sector to varying degrees—some were fully employed in tourism-related businesses, while others were only partially engaged. Their occupations included drivers operating between Muynak and the Aral Sea, guesthouse and hotel owners or staff, restaurant owners and workers, as well as local guides and tourism researchers.

To maintain confidentiality, as promised to participants, specific occupations and other personal identifiers were coded in the data analysis. Employment status was categorized as either “partial occupation” or “full occupation.” The term *partial occupation* refers to respondents who worked in tourism alongside another job, while *full occupation* denotes those exclusively engaged in tourism-related employment or business. For example, a respondent might work as a driver for tourists on weekends while simultaneously holding a position as a government employee.

Similarly, respondents’ ages were anonymized and coded into ranges to ensure additional confidentiality. Finally, the names of respondents were anonymized and coded as R1 to R18, where “R” represents “Respondent.” This coding system is reflected in the results section, where quotes associated with specific themes are followed by the corresponding respondent code.

Table 1. Demographic profile of interview respondents

Code	Gender	Age	Occupation in Tourism
R1	Male	66-75	Partial occupation
R2	Male	36-45	Full occupation
R3	Female	66-75	Full occupation
R4	Male	66-75	Partial occupation
R5	Male	36-45	Partial occupation
R6	Male	56-65	Partial occupation
R7	Female	46-55	Full occupation
R8	Male	46-55	Full occupation
R9	Male	46-55	Full occupation
R10	Male	56-65	Full occupation
R11	Male	36-45	Partial occupation
R12	Female	26-35	Full occupation
R13	Male	46-55	Full occupation
R14	Male	26-35	Partial occupation
R15	Female	26-35	Full occupation
R16	Female	46-55	Full occupation
R17	Male	36-45	Full occupation
R18	Male	26-35	Partial occupation

Source: Draft A. ALLABERGANOV 2025

4.2 Development of Dark Tourism in Muynak

4.2.1 Soviet Tourism: Sun, Sand, and Sea

When discussing tourism development and international travel, the Soviet Union is rarely the first example that comes to mind. However, it is notable that tourism in Muynak began precisely during the Soviet era. Despite significant restrictions on tourist movement, Muynak welcomed visitors primarily as part of domestic tourism, with travelers coming from other Soviet republics as well as from Eastern European countries, particularly the German Democratic Republic (East Germany).

Several interviewees, both in formal and informal settings, recalled memories or stories passed down from older generations about the presence of tourists during that time:

“I remember tourists were coming here to Muynak to see the Sea and its shores. There were many boats available to see.” (R1)

“We had many domestic tourists when there was water in the Aral lake. They came from other parts of Soviet Union. We also had a resort near the lake for them.” (R12)

Results

“I heard from older generations that we had many tourists from East Germany. I heard that there was a professor from East Germany who wrote a book about this region.” (R2)

Between the 1960s and 1980s, when water was still abundant in the Aral Sea, tourism in Muynak was primarily based on the “sun, sand, and sea” concept. Most visitors were students, children attending summer camps, and researchers. Given that private ownership of land and businesses was virtually non-existent in the Soviet system, tourism activities were organized and managed by the state. As a result, a government-run resort was constructed in Muynak to accommodate domestic and limited international visitors:

“Tourists used to come here; I remember mainly from Moscow to swim in the Sea. Of course, when we had the Sea on those days. We had a resort here nearby near the current dried-up shore of the Aral Sea. This was during the Soviet Union, and the Sea was full. I remember we had tourists from China even. But again, those days we had the water. There were restaurants there as well.” (R1)

“...back in the days when there was water in the Aral lake, there were many tourists from other part of Soviet Union. There was a camp as well like a resort near the lake. Many buildings were there as well for the tourists. But after the Aral lake disaster tourists stopped coming.” (R14)

“Not too far away from there, we used to have a hotel or something like hotel. Maybe a resort would be a better word. We used to have a resort there and many Russians used to come for sun and sea. Probably it is considered as an internal tourism not like today.” (R6)

“Back then we had a resort and kindergartens for internal tourism. Tourists from all parts of the Soviet Union used to come here. Even government officials used to come to swim in the Sea.” (R3)

Unfortunately, when the Aral Sea began to recede, the resort and related facilities were largely abandoned and eventually demolished, leaving behind only memories of what was once a popular holiday destination in the Soviet Union:

Results

“After the lake disaster, the resort was abandoned because no one came to stay there. After some time it was destroyed, and some parts were taken by local scavengers.” (R15)

“It was near the graveyard of the ships, a little down the road. Now it is destroyed, you cannot even go there because the roads are also destroyed.” (R18)

The remnants of Soviet-era tourism were still evident during field observations and were mentioned repeatedly in informal interviews. During these observations, the researcher visited the site of the old Soviet resort—now largely in ruins. Some remnants of the old access roads remain visible near the former shoreline of the Aral Sea, serving as a reminder of Muynak’s brief past as a thriving Soviet tourist destination.

4.2.2 Dark Tourism

Creation of Business Ventures

Before examining the development of dark tourism in the town of Muynak, it is essential to acknowledge the major political and economic transformations that took place in the Republic of Uzbekistan following the collapse of the Soviet Union. Similar to other towns across the country, residents of Muynak began to privatize their properties—such as homes and land—thereby engaging in private ownership and entrepreneurial activities. With the desiccation of the Aral Sea and the gradual introduction of a market-based economy, some members of the local community started investing in tourism-related ventures, particularly in the emerging field of dark tourism.

Several residents initially transformed parts of their homes into small hostels, while others later established hotels, particularly after 2016, supported by bank loans. All of these enterprises were privately owned:

“During the festivals, even those who are not really involved in tourism start hosting tourists to have some income.” (R17)

“I bought my hotel through a bank loan, I cannot share with you the details, but I am getting close to paying it off.” (R16)

The development of these privately owned tourism ventures was made possible largely through government support and increasing political attention from both local and central authorities.

Results

Regulatory reforms, particularly those related to visa policies and the movement of tourists, significantly contributed to the growth of tourism activity in Muynak:

“...we had a strict visa system. It was hard for tourists to come here...The tourist numbers started to pick up after 2010 but in 2016 the numbers went up very high and it was very noticeable...I think it was because of the visa system which was made easier.” (R2)

“It was a bit difficult back then though. For example, after the collapse of the Soviet Union, we had some difficulties to have tourists. It was not allowed or there was a limit... Now, things are much better, and we have a lot of support and attention from the government.” (R3)

These developments were also evident during the field observations. Tourists were able to freely book accommodation and move around Muynak without restrictions from local authorities. Moreover, during informal interviews, some government employees expressed optimism and eagerness for more international visitors to come to Muynak and stay longer within their communities.

Witnessing the Disaster

The introduction of capitalism and private ownership alone does not guarantee the successful development of tourism. However, this was not the case for the town of Muynak. As the water levels of the Aral Sea began to recede, the number of visitors who once came to enjoy its beaches and resorts gradually declined. This sharp reduction in leisure tourism threatened to erase the region’s tourism and hospitality industry altogether. Yet, rather than disappearing completely, Muynak witnessed a transformation in its tourism landscape—from leisure-based travel to dark tourism, where the primary motivation for visitors became witnessing the environmental catastrophe of the Aral Sea.

Many formal interviewees emphasized that people now visit Muynak specifically to experience and reflect upon this ecological disaster:

“They told me that there are many seas and oceans in the world but the one that is completely dried out is the only one which is the Aral Sea. They say that waters can overflow but the one that is completely dried up is unimaginable for us.” (R2)

Results

“They went to the graveyard of ships and built a small camp, and they stayed there for 3 nights. They were taking photos etc. I asked them what the purpose of that was and they said that they want to witness and feel this unfortunate disaster that happened to the Aral Lake.” (R14)

“You see, Aral is a well-known topic today. It was the fourth-largest inland Sea back then. Now it is gone, nothing is left. They want to see this disaster. They want to see what is left of it. They go and see the ships here in Muynak. They want to have that memory and history. Tourists come here from all over the world. Even bloggers come here to make films and sometimes we participate in that as well.” (R3)

“Mostly they come to Muynak to see the cemetery of the ships and the former Aral lake area. Some of them stay at the site as well. Some of them go and take the journey from here to the Aral lake and spend a night there. You can see the Aral Sea there and some fishermen there who catch artemia.” (R15)

These observations were also confirmed during the researcher’s fieldwork, which coincided with both the qualitative and quantitative data collection. International visitors were observed photographing, filming, and reflecting at the site of the former Aral Sea, clearly moved by its haunting landscape. The researcher also joined a desert expedition across the dried seabed of the Aral Sea, reaching the current shoreline after approximately four hours of travel. At the site, fishermen were observed harvesting artemia eggs—the only surviving organism in the hypersaline waters. Nearby, a few newly built hotels were already in operation, and a small yurt camp offered accommodation for tourists wishing to spend the night at the lake’s edge.

Dark Festivals

In addition to the growing number of visitors to witness the Aral Sea disaster, Muynak has also seen an increase in locally organized festivals and events that contribute to the development of dark tourism. Among these are cultural gatherings such as the “99 Dishes from a Fish” festival and the annual rally event.

“We have a festival called 99 Foods from a Fish. Locals cook foods and people can come to try them out. It happens every year. I am invited there every time. They even cook plov from a fish.” (R3)

Results

“Sometimes I am hired to cook traditional and local dishes for tourism. I cook a lot of food from fish and participate in 99 dishes from the fish festival.” (R5)

“There is a rally and 99 dishes from a fish festival which I really enjoy. I think everyone likes it. In the rally they bring drivers from all over Uzbekistan to race and winner gets a prize and in the dishes festival they cook different types of dishes and salads from a fish.” (R7)

However, the most significant and distinctive event that connects directly to the ecological tragedy of the Aral Sea—and, consequently, to the rise of dark tourism—is the Stihia Festival. This annual electronic music festival, held in Muynak since 2017, is dedicated to commemorating the Aral Sea disaster while symbolically “calling the water back” through sound and artistic expression.

“By the way there is another festival coming up soon called Stihia, it is very famous and last few days, the locals make some earning at that time. They hotels get booked fully even people houses.” (R11)

“They do a music festival, and they want to call the sea to come back. It is a like shaman practice. Like shamans they make sounds with music, they cry to bring the sea back.” (R3)

“I was at this festival as a cook. It is a music festival mainly to remember the disaster of Aral Lake and symbolically they make sounds to bring the water back.” (R12)

“The most famous one is Stihia festival, usually organized in May. It is like three- or four-days event and many tourists come at this time.” (R9)

Evidence of these government-supported festivals was visible throughout the town of Muynak during field observations. Posters promoting Stihia were displayed across public areas, and the festival’s influence was especially prominent at the Cemetery of Ships, where graffiti and artistic inscriptions left by Stihia participants could be seen. These cultural expressions, merging art, memory, and activism, serve as symbolic reminders of the Aral Sea tragedy while simultaneously promoting Muynak as a unique destination for dark tourism.

Results

Research and Learning

Beyond witnessing the Aral Sea disaster and participating in various events, an increasing number of visitors now travel to Muynak for research and educational purposes.

“Some tourists come here as a researcher for example you also came here to do research, and you are also tourists or a guest for us.” (R16)

“We have students coming here as well. Mainly for research and to do practical work.” (R1)

“By they way they are some tourists who come here as a researcher to learn about the Aral lake disaster. Some students also come here to plant trees and saksauls from local universities.” (R18)

This research and learning motivation was also clearly observed during fieldwork. Areas designated for environmental research and saxaul plantation (Figure 8) were identified mainly near the Cemetery of Ships, highlighting the growing engagement of both academic institutions and environmental organizations. These activities suggest that Muynak is not only a destination for visitors seeking to witness the ecological catastrophe but also an emerging site for scientific research, environmental education, and experiential learning. This trend contributes to the broader development of dark tourism by combining elements of education, sustainability, and remembrance.

Cultural Curiosity

One of the most notable and novel findings regarding tourist motives in Muynak is cultural curiosity, which represents a new addition to the dark tourism literature. According to the majority of respondents during formal interviews, some international tourists specifically choose to visit and stay with local residents to understand how the community lives after the Aral Lake disaster. These tourists are particularly interested in local livelihoods, daily routines, and culinary traditions:

“They want to know about the local people and are curious about how we live here.” (R2)

“They also want to know how the local people are living here. In what condition they are living here? I see them all the time in our streets trying to see our way of way.” (R5)

Results

Figure 8. Aral Lake research area and Saksaul planting



Source: A. ALLABERGANOV 2025

“They want to stay in the community and live with the community ... They want to live and see our culture and tradition. They help us out in our daily chores around the house as well ... They want to cook in our outside ovens, and they want to eat from it. We cook many dishes for them, especially fish.”

(R13)

Tourism development in Muynak has therefore been transformative rather than incidental. Initially, the town welcomed leisure tourists interested in sun and sea activities while the Aral Lake was still intact. During this Soviet-era tourism phase, the industry was primarily state-owned, and most visitors were domestic tourists from other parts of the Soviet Union. Leisure activities were provided through state-managed facilities, such as the resort once located on the banks of the Aral Lake.

Results

However, as water levels began to recede, leisure tourism declined rapidly. In a short period, Muynak shifted to dark tourism, attracting visitors motivated by the desire to witness the ecological disaster, engage in cultural exchange, and participate in research activities.

Figure 9 illustrates the development of dark tourism in Muynak from the perspective of local communities and their involvement in dark tourism activities. Typically, dark tourists begin by visiting the Cemetery of Ships and the museum dedicated to the Aral Lake catastrophe to gain an understanding of the disaster. Some tourists also take a desert journey across the dried seabed of the Aralkum Desert, reaching the remaining waters of the Aral Lake. Here, they can observe artemia harvesting by local fishermen and spend a night in local yurts or hotels before returning to Muynak.

Although alternative routes to the Aral Lake exist, such as from Nukus or Khiva, the full dark tourism experience—including the cemetery, museum, and desert journey—is only possible through Muynak. This path provides tourists with a holistic understanding of the disaster, the local culture, and the transformative impacts on the community.

4.3 Perceptions of Tourism Impacts in Muynak

Using Social Exchange Theory (SET) as a framework to analyze local community perceptions, the study identified significant economic, socio-cultural, and environmental impacts associated with dark tourism development in Muynak. Each category of impact was further divided into positive and negative effects, reflecting the nuanced perspectives of the community members. The discussion begins with the economic impacts, followed by socio-cultural and environmental considerations.

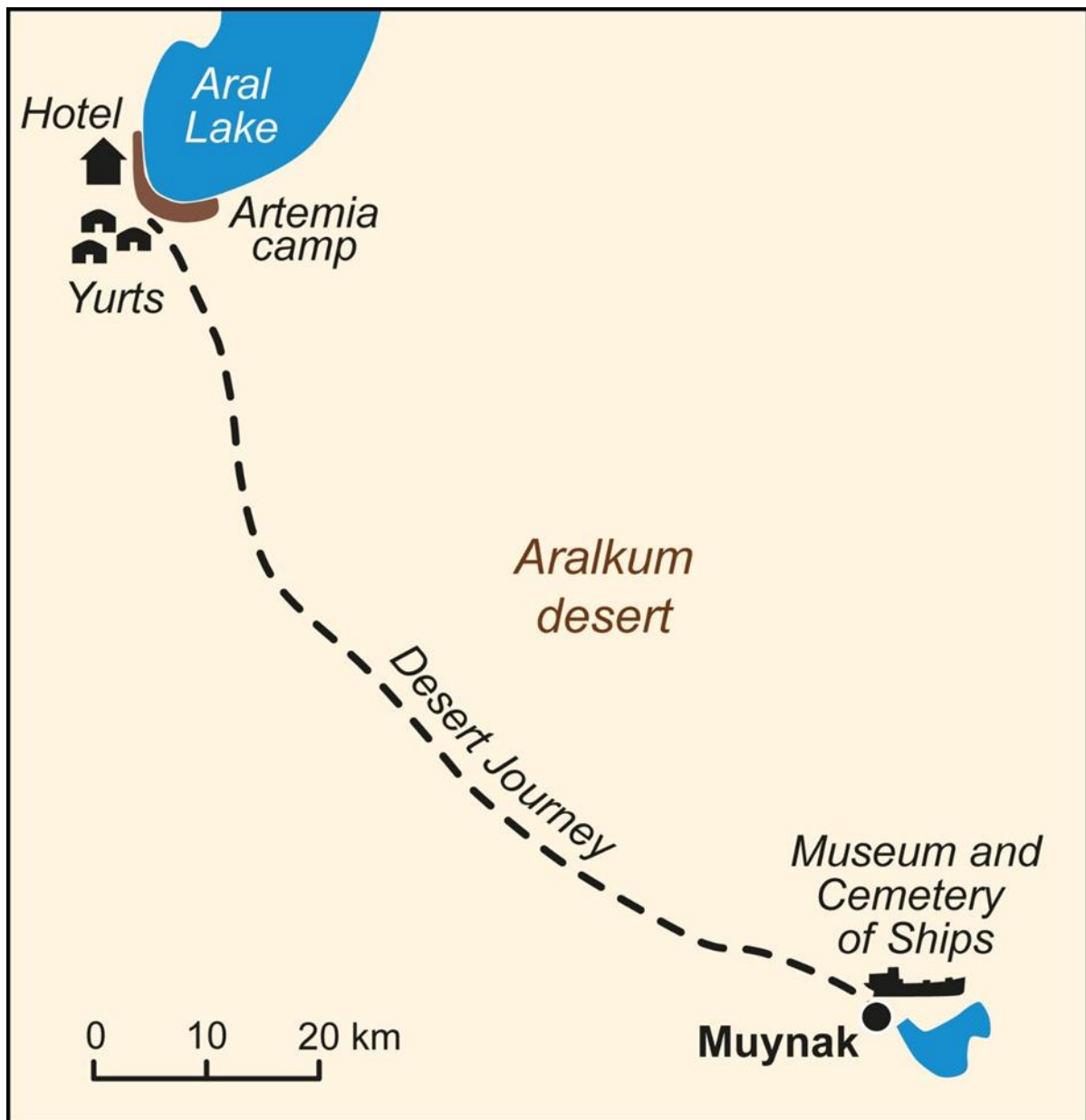
4.3.1 Economic Impact

Economic effects were among the most visible and widely perceived impacts of dark tourism development in Muynak. Community members identified both positive and negative consequences, with three primary positive economic themes emerging: infrastructure improvements, employment opportunities, and new business ventures.

Infrastructure Improvements

Among the economic benefits of dark tourism development in Muynak, infrastructure improvements were the most visible and widely acknowledged by the local community. These improvements become apparent immediately upon entering the town. Two major types of infrastructure enhancements were highlighted: road reconstruction and building renovations along the main street.

Figure 9. Muynak dark tourism sites



Source: Draft A. ALLABERGANOV, Cartography L. DIEHL, 2025

Results

The first and most noticeable improvement was the renovation of the main road leading into Muynak and the main street within the town. These roads were originally constructed during the Soviet period to support the fishing industry. However, after the collapse of the Soviet Union, both the internal and external road networks deteriorated significantly due to a lack of maintenance. The main street in Muynak was completely reconstructed after the 2016 presidential election, primarily to improve accessibility for tourists and enhance the town's appeal. Many interviewees highlighted these improvements:

“As a result of tourists who are guests, we have made many improvements here. You mentioned them and saw them. We have built and expanded our main street and built many new buildings alongside it.” (R3)

“...the main benefit was the infrastructure improvements in the town. Government completely rebuilt this main road...” (R8)

During field observations, the renovations of both the main street and the road leading to the airport were clearly visible. However, minor roads within the town and major roads connecting Muynak to neighboring towns, such as Kungrad, remained in poor condition:

“The road that connects Muynak to Kungrad is not in a good condition and I think it should be one of the roads that need to be corrected.” (R12)

“There has been major improvements in Muynak of course but still there are some roads inside the town and also outside the town that need to be rebuilt because it is a bit embarrassing for us when the tourists visit us during the tourism season or festivals.” (R16)

The second major infrastructure development involved the reconstruction of existing buildings and the construction of new structures along the main street. Residents expressed pride in these changes:

“Everything you see on the main road is also new. All were built around 2017 or 2018. Before it was old houses called Itarqa. We had only an airport that is all. Look at this house, this is Itarqa. Even this house where we are now is new, we used to live in Itarqa also.” (R4)

“All of these buildings on the main road are new. Before that, it was old houses called Itarqa. The road was also in horrible condition.” (R5)

Results

“There were many reconstructions in Muynak recently and all the buildings especially on the main road were rebuilt.” (R14)

“They have also built many new buildings alongside it. Before that it was old road with old houses called Itarqa or also known as fishing huts.” (R9)

Itarqa are traditional Karakalpak fishing huts that local residents used for centuries. These small houses were adapted to the local environmental conditions and were particularly resilient to seasonal flooding:

“It is a nice house; keeps you warm in Winter. They usually have 3 bedrooms. They are also very good when we used to have water here. When there was water overflow, the houses did not collapse. These are very special fishermen’s huts.” (R2)

During informal interviews, opinions varied regarding the Itarqa. Some residents felt that they were not aesthetically pleasing, particularly with the increasing number of tourists, while others argued that some should be preserved for their cultural and historical significance. Today, some Itarqa still exist on minor streets and are used as storage or ancillary buildings by local residents.

Figure 10 illustrates a typical Itarqa that remains in Muynak, reflecting both its historical significance and functional design.

Figure 11 illustrates the major infrastructural improvements in the town of Muynak since 2016. The map shows the entire town and highlights areas that have been either completely rebuilt or removed. The main road of Muynak, marked in red, has been fully expanded and reconstructed, representing one of the most immediately noticeable changes upon entering the town. Buildings alongside this road, highlighted in orange, include newly built or renovated governmental offices, businesses such as shops, restaurants, and hotels, as well as entertainment facilities including parks, a football stadium, and newly constructed residential flats.

A closer view of the northern part of Muynak (Figure 12) highlights specific infrastructural changes. Initially in 2016, the area was primarily residential, with few businesses or governmental buildings along the main road.

Results

Figure 10. Remaining Itarqas of Muynak



Source: A. ALLABERGANOV 2025

Results

Following renovations aimed at attracting tourists and improving the town's aesthetic appeal, numerous new business buildings—including cafes and hotels—were constructed, alongside additional flats and factory buildings after 2016.

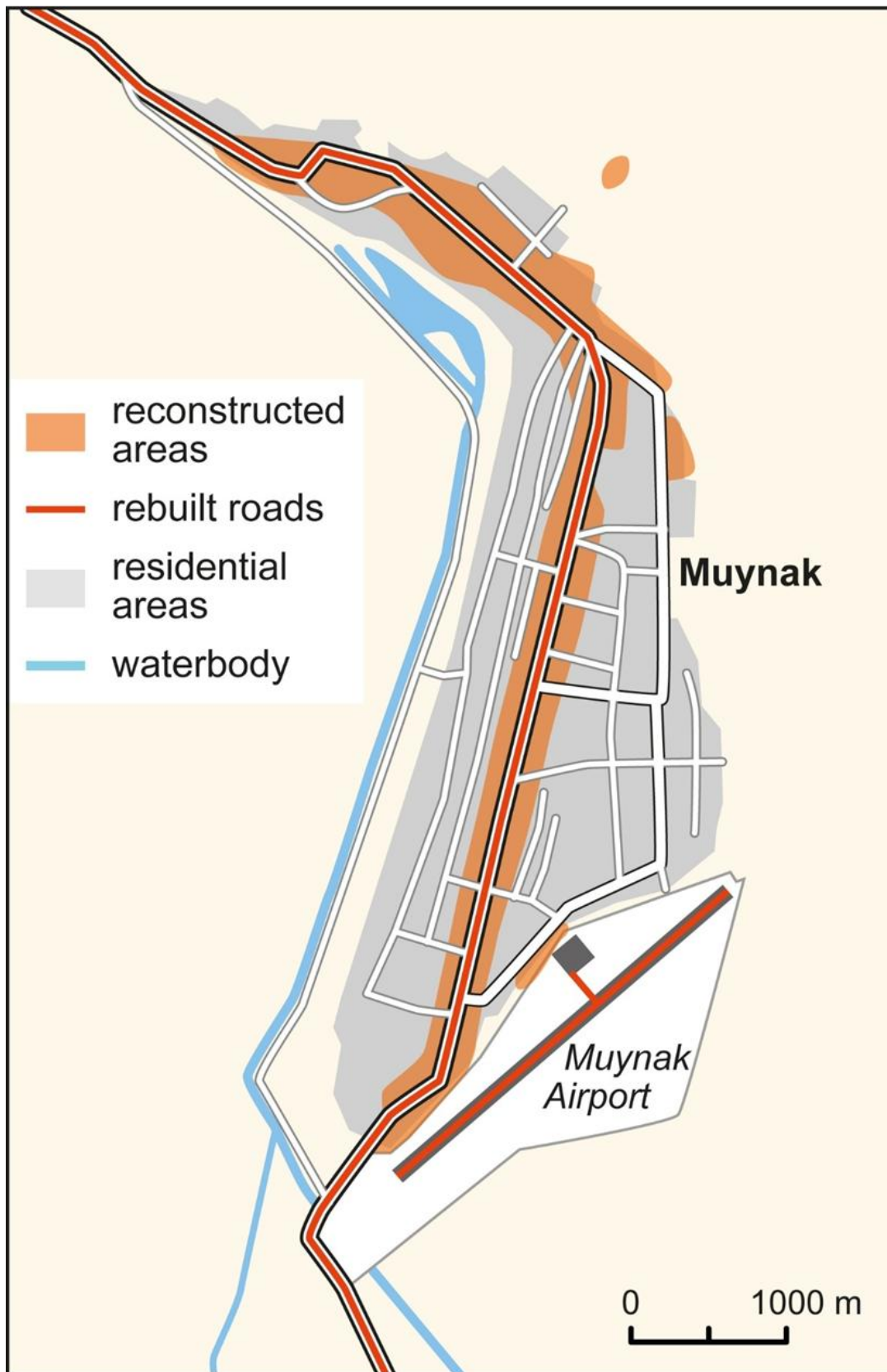
In terms of cultural infrastructure, two museums dedicated to the history and ecological disaster of the Aral Lake are now present in Muynak. Originally, there was only one Aral Lake Museum, which was in poor condition before 2016. Renovations alongside the main road included the complete restoration of the old museum, and a second museum dedicated to the Aral Lake's history was built near the cemetery of ships:

“Well, there are two Museums here in Muynak. One is the one where we are now and the other one is located in front of the town hall. That museum which is now in front of the town hall was in Uchsay. It was relocated in 1994. It was in a horrible condition at that time. The windows were broken. Then in 2018, that Museum was completely rebuilt. Then in 2019, we moved everything related to the Sea here to this Museum. Now we have two Museums, but in reality, we consider them both as one.” (R2)

Perhaps the most significant contribution of tourism development to Muynak is the cemetery of ships, which has become a landmark of 21st-century dark tourism. Following the collapse of the Soviet Union, numerous ships were left stranded in the dried-up Aral Lake. Over time, scavengers removed many ships for metal, prompting local authorities to preserve a selection as a heritage site:

“Our governor made a good contribution; he ordered all the ships to be collected in one place and made a museum out of it. We had many ships and people began to scavenge them. What you see is what is left of all the ships. There were a lot of ships back then. We are lucky to have the governor. He was able to save a few ships from scavengers. Otherwise, there would be no graveyard of ships museum that you see today. Scavengers even from Kazakhstan used to cross the border to scavenge the remaining ships on the bottom of the sea. If there were no ships left, there would be no tourism here at all. These ships that remain today are what show that there was a sea here before otherwise it would be just a desert here.” (R4)

Figure 11. Overview of infrastructure changes of Muynak



Source: Draft A. ALLABERGANOV, Cartography L. DIEHL, 2025

Results

Figure 12. Infrastructure changes in the North of Muynak



Source: Draft A. ALLABERGANOV, Cartography L. DIEHL, 2025

Results

Without the cemetery of ships and the museums, there would be little incentive for domestic or international dark tourists to visit Muynak, preventing the development of dark tourism in the region. Figure 13 illustrates infrastructural developments between 1991 and 2024, including the cemetery of ships and Aral Lake museums.

- Top map (before 2006): Shows no significant infrastructure, only the old Soviet-era road.
- Middle map (after 2006): Establishment of the cemetery of ships and a monument dedicated to the Aral Lake disaster, marking the first steps in Muynak's dark tourism development.
- Bottom map (post-2016): Illustrates modern developments, including museums near the cemetery, operational yurts, and a restaurant catering to tourists.

Notably, these facilities were operational before the COVID-19 pandemic but have since closed indefinitely:

“There was a good hotel near the graveyard of ships with a restaurant but after Covid it got closed permanently, I am not sure why. I think that hotel must be reopened. It is located in a nice place.” (R11)

“Yes, during the Covid we had some difficulties of course similar to other destinations, but we have survived. Some businesses for example near the cemetery of the ships did not reopen.” (R16)

Another major infrastructure improvement was the Muynak airport, which was completely reconstructed and set up to accommodate charter flights:

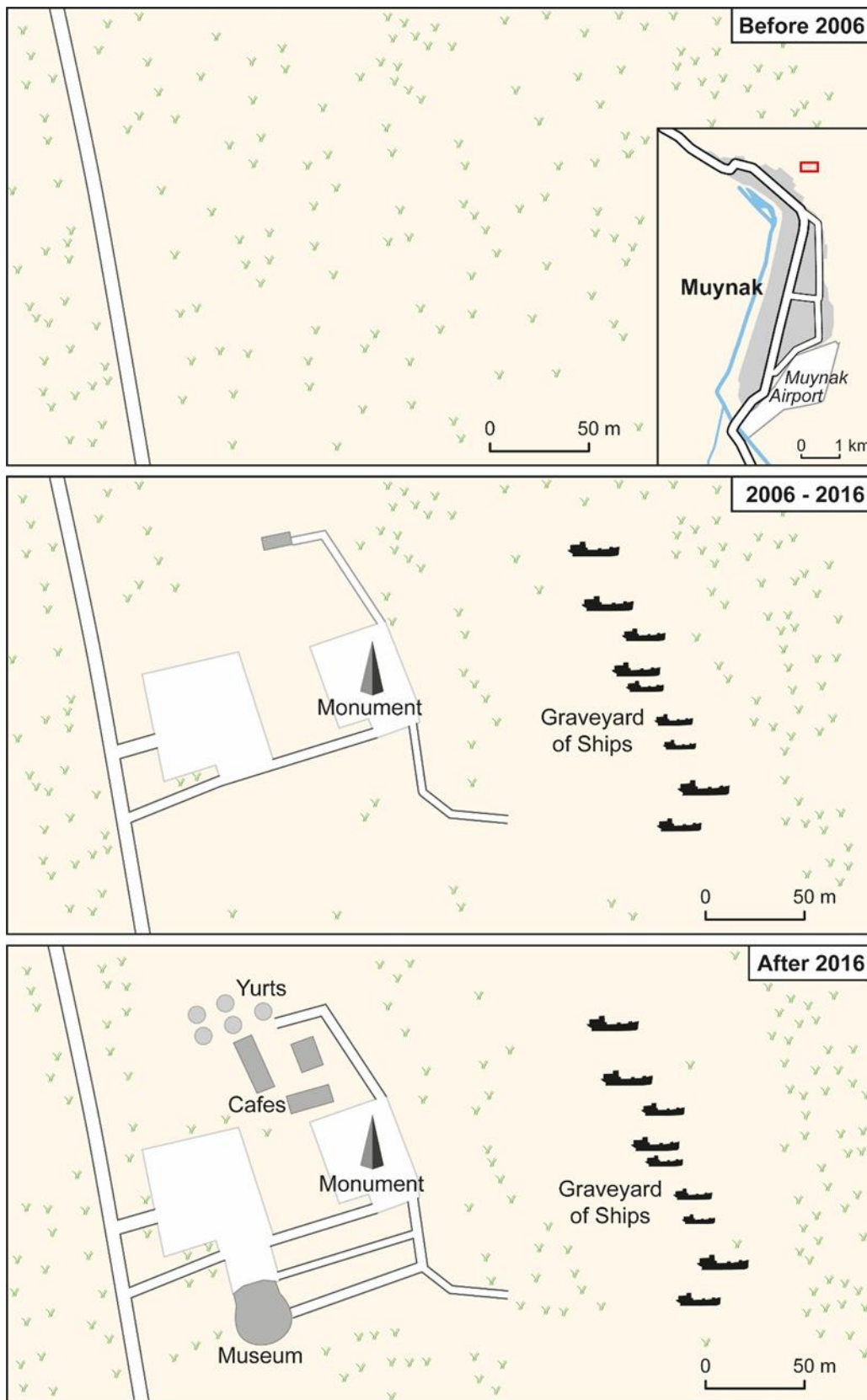
“The airport has been completely renovated, and we have flights now for the tourists.” (R17)

“We have also taken control of our airport which was not functioning. Now it is rebuilt and working. We have flights three times a week.” (R2)

Figure 14 maps the old airport and its post-2016 renovations, demonstrating how the airport now supports international tourist access from cities like Nukus.

Results

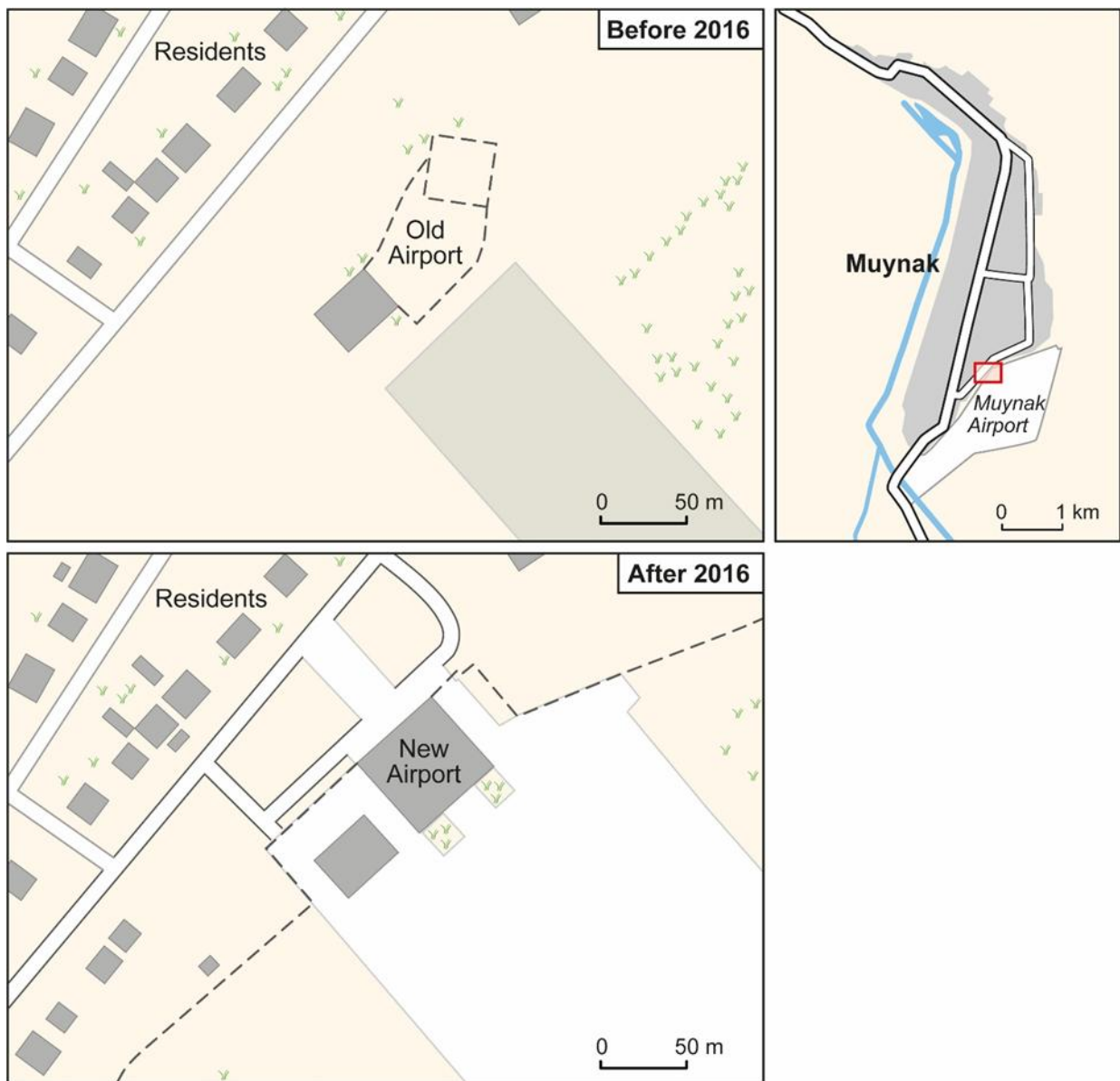
Figure 13. Infrastructure changes of Cemetery of Ships



Source: Draft A. ALLABERGANOV, Cartography L. DIEHL, 2025

Results

Figure 14. Infrastructure change of Muynak airport



Source: Draft A. ALLABERGANOV, Cartography L. DIEHL, 2025

Results

In summary, the improvements to Muynak's main road, the reconstruction and construction of buildings along it, the establishment of museums, the cemetery of ships, and the renovation of the airport represent the first visible and transformative impacts of tourism development in the town. These infrastructural changes were among the first points noticed during fieldwork and observations, signaling the town's shift toward becoming a dark tourism destination.

Employment

Following the infrastructural improvements in Muynak, such as road reconstruction and new or renovated buildings, employment has emerged as a significant economic benefit of dark tourism development. The growth of tourism has created numerous job opportunities for local residents, allowing them to engage with and financially benefit from the sector.

The most direct employment opportunities are in museums, hotels, and restaurants, providing services to incoming tourists. Several interviewees highlighted this:

"We have some Museum employees, guesthouse and hotel employees, and of course drivers." (R8)

"...We have many jobs at the hotels and restaurants. Most women work at the restaurants and younger people work at the hotels." (R15)

Another prominent form of employment involves driving tourists both within Muynak and to the Aral Lake:

"... Some drive the tourists to the Sea. Many people drive to the Sea. Many tourists take their services. They should take our service for driving." (R17)

"Some people drive tourists to the Aral Lake, or what is left of the lake, and some help them to shoot short films near the ships, that is all I know at the moment." (R1)

Field observations and informal interviews confirmed these findings. Many residents, even those with formal jobs in the public or private sectors, offer driving services on weekends or on demand. Some drivers indicated that they could accompany tourists to the Aral Lake and stay overnight to ensure safe return to Muynak.

Business Ventures

Another significant economic benefit of dark tourism in Muynak is the entrepreneurial activities of local residents. One of the most visible examples is the construction of hotels and

Results

motels. Prior to 2016, there were only two or three hotels in the town; this number has now tripled, with approximately eight hotels currently operating:

“Hotels and guesthouses were not a common thing here until 2016. After that our President started investing into tourism industry so now, we have about 8 hotels and guesthouses in Muynak alone. Before tourists used to rent a room with the locals now, they have a chance to stay in the hotels.” (R10)

Field observations confirmed this growth, with most hotels being medium-sized and offering multiple rooms. In addition to hotels, guesthouses have become a major entrepreneurial activity, often serving as a more affordable entry point for local residents to participate in tourism:

“I had a car and a guesthouse. That is how I started in this industry. Now, things are much better. I have a credit from the Bank at a good rate and my children all work in this industry. We own guesthouses and cars to take tourists to the Sea.” (R3)

“By renting their houses when the hotels are full...Some families have official guesthouses here that have their places on the internet as well. They do it officially. There are like 2 or 3 families who do.” (R10)

During field observations, researchers visited one guesthouse and were given a tour showcasing the services offered to tourists. Guesthouses allow visitors to live among the local community, cook and eat local dishes, and experience the culture directly—an experience often preferred over staying in hotels. Informal interviews indicated that some residents operate permanent guesthouses, while others rent them out during peak periods, such as festivals or special events:

“You see tourists when they come here are not interested in five-star hotels. They want to stay in the community and live with the community. That is why guesthouses are more in demand. They want to live and see our culture and tradition.” (R3)

Finally, the growth of tourism has led to the development of cafes and restaurants along the main road. Many respondents highlighted that new restaurants were often established alongside hotels:

Results

“The main road was renovated and rebuilt in 2019. Same with the new buildings. This place where the hotel is now was also fishing hut. I bought this land and rebuilt it completely. These things were done after 2019. So recent. I bought these lands and built hotel with a restaurant.” (R10)

Field observations confirmed that restaurants and cafes now serve various local dishes to both tourists and residents, further contributing to the local economy.

Limited Benefits

Despite the major economic gains following the development of dark tourism in Muynak, many respondents highlighted that these benefits are limited and not widely shared across the local community. According to formal expert interviews, increased earnings and employment opportunities primarily benefit taxi drivers and a few families consistently engaged in tourism and hospitality:

“There is no benefit to the people from the tourism industry here in my view.”
(R12)

“I personally did not get anything from it. They come to the ships and leave from there.” (R1)

“To be honest only few. I can count them with one hand. I can just name few names who rent their houses on regular basis as a guesthouse. Some have a restaurant; the rest just drive that is all.” (R6)

Field observations confirmed this limited distribution of benefits, showing that the majority of financial gains from tourism were concentrated among taxi drivers and a small number of local families operating guesthouses regularly.

Non-Local Business Ownership

Another significant economic challenge is the prevalence of non-local business ownership. Many respondents indicated that most tourism-related businesses, including hotels and restaurants, are owned by entrepreneurs from other towns such as Nukus and Kungrad, with the exception of small-scale guesthouses:

“Most of the businesses in the tourism industry are owned by people from other towns.” (R2)

Results

“Business owners? Mainly, they come from other towns like Kungirad or Nukus.” (R13)

This trend is partly explained by the lack of experience among local residents in the tourism and hospitality sector:

“Most of the owners are not from here. Locals do not involve themselves in tourism.” (R6)

“Most hotels are owned by people from other places like Nukus. Tourists are brought by people from other towns as well. When the tourists come here, they stay in the hotels or guesthouses who are rented by two families, I think. If they stay of course if not they just leave after seeing the ships. Tourists are here but locals are not too involved in it.” (R7)

In addition to hotel and restaurant ownership, tour operators are also predominantly non-local, coming from cities such as Nukus and Khiva:

“All tour operators are in Nukus, and they send the tourists here. They also receive their tourists from Samarqand or Tashkent. Some come directly from Khiva.” (R2)

“Locals need to make more money and employment through tourism. Now we are not benefitting a lot from tourism.” (R6)

Field observations and informal interviews further confirmed that there are no permanent tour operators or guides based in Muynak. Most guides accompany tourists temporarily and leave once the tours are completed, which limits the direct economic benefits that the local communities receive from tourism activities.

4.3.2 Socio-cultural impact

Following the perceived political and economic impacts of tourism development in the town of Muynak, the next most visible and frequently mentioned effects were socio-cultural in nature. Similar to the economic and political dimensions, local perceptions of socio-cultural impacts were mixed, encompassing both positive and negative outcomes. The primary positive effects identified by residents included increased cultural exposure, language learning, and educational opportunities, while the main negative concerns were associated with non-local festivals, vandalism, and the gradual loss of cultural authenticity.

Results

Special attention

Before the emergence and development of dark tourism, Muynak and its surrounding areas were largely neglected in terms of political attention and financial investment, particularly after the collapse of the Soviet Union. In contrast, other tourism destinations in Uzbekistan—such as Samarkand, Bukhara, and Khiva—received substantial investment and governmental focus, as these cities were recognized early on for their tourism potential. Consequently, major tourism facilities, attractions, hotels, and guesthouses were developed in these cities to attract international visitors and enhance local livelihoods.

Residents of Muynak, however, experienced prolonged economic and educational neglect, especially before 2016:

“After the new president took office, there were major changes and attention on the town of Muynak. Before that the town was in a horrible condition.”

(R11)

“I am telling you it was abandoned town. It is much better now after 2016.”

(R18)

The recognition of Muynak’s dark tourism potential in the early 2000s gradually shifted this situation, leading to increased political attention and renewed financial investment. Many residents expressed pride in the attention they have since received from both local authorities and the President of Uzbekistan:

“We are proud of the fact that we are from Muynak, we have a certain amount of attention. We have many festivals now organized by the government.” (R2)

“We have a lot of support and attention from the government and the President.” (R15)

Cultural exposure

During the formal expert interviews, the majority of respondents identified cultural exposure as one of the most significant socio-cultural benefits resulting from dark tourism development in Muynak. Owing to the economic hardships caused by the desiccation of the Aral Sea, most local residents have limited opportunities to travel abroad or engage directly with other cultures. However, the influx of international visitors has allowed them to encounter new people and traditions without leaving their hometown. This exchange has fostered a sense of openness and mutual learning between locals and tourists:

Results

“People do not have money to visit other countries and see other cultures but here the tourists come, and the people experience that.” (R2)

“Here in Muynak, we have a lot of tourists, and the people are used to it, and they have experienced other cultures and traditions. For example, if our children go to other countries to study or to work, they will not be culture-shocked.” (R17)

A notable outcome of this interaction is the growing sense of cultural pride among residents. Many locals expressed feelings of satisfaction and honour that international tourists are interested in observing their way of life and learning about their resilience in the aftermath of the Aral Sea disaster. This sentiment was also reflected earlier in the interviews when participants highlighted the preference of international visitors to stay in guesthouses rather than hotels in order to experience the community’s culture more authentically:

“Of course, they cannot bring the sea back, but the tourists are promoting and making us and our place very popular around the world.” (R14)

“We feel extremely happy and proud that foreigners are coming to see our culture and tradition.” (R16)

Field observations and informal interviews further revealed that some international tourists not only observe but also participate in local traditions and ceremonies, including weddings. Wedding celebrations hold deep cultural significance across Central Asia, particularly in Uzbekistan, where such events often host several hundred guests. In Muynak, it was reported that international tourists occasionally entered local wedding festivities out of curiosity, and rather than being turned away, they were warmly welcomed by the hosts. As hospitality is a core cultural value in Central Asia, guests—whether local or foreign—are typically invited to share food, music, and dance, symbolizing the openness and generosity of the Muynak community.

Language learning

Another major perceived socio-cultural impact of tourism development in the town of Muynak is the opportunity for local residents to learn and practice foreign languages through interactions with international visitors. The growing number of foreign tourists has encouraged many community members, particularly the younger generation, to engage in informal

Results

language learning while also earning an income by assisting visitors. As some respondents expressed during the interviews:

“Some kids to communicate to learn their languages or make some money. I also was like that. I helped as a guide to improve my English and make some money.” (R2)

“Younger people in our community talk and learn foreign languages here compared to other towns.” (R12)

“If you know that some tourists who come here to stay at the guesthouses. In some cases, some of the local people or even teenagers who work or stay near these guesthouses can speak and learn foreign languages.” (R15)

This type of interaction-based learning not only enhances communication skills but also fosters confidence and curiosity among local youth to connect with people from different cultural and linguistic backgrounds. It represents an organic, community-driven form of language acquisition linked directly to tourism activity rather than formal education.

Evidence of language learning was also noted during field observations. In restaurants, waiters and waitresses often greeted or interacted with tourists using basic English phrases, while some hotel workers made efforts to communicate in English when taking orders or providing services. Such interactions reflect the practical and functional nature of language learning in Muynak, where tourism serves as both a motivator and a platform for developing foreign language skills.

Education

Another notable socio-cultural impact of tourism development in the town of Muynak is the expansion of knowledge and skills related to tourism management and administration among local community members. Several respondents, particularly those directly engaged in the tourism and hospitality sector, highlighted that interaction with international tourists and exposure to tourism practices have enabled them to acquire new forms of knowledge—especially in the area of online marketing and digital promotion of their services. As expressed by one respondent:

“Tourists showed me how to put my guesthouse online. We have guesthouses now that are available and can be seen online. People know and share about us online.” (R16)

Results

This illustrates how informal learning through direct engagement with tourists has played an important role in building the community's digital and entrepreneurial capacity.

During the field observations and informal interviews, several local guesthouse and hotel owners demonstrated their efforts to list and promote their accommodations on online platforms such as Booking.com. However, many still faced difficulties in effectively managing these systems—for example, setting up online payment options or handling no-shows from booked guests. In some cases, basic guidance was provided during the fieldwork to assist them with improving their online visibility and management processes.

Overall, the findings suggest that tourism in Muynak has become not only a source of income but also an informal educational platform, allowing residents to develop new competencies in hospitality, marketing, and digital communication—skills that were previously limited or unavailable in the community.

Non-local Festivals

Despite the major positive socio-cultural impacts associated with dark tourism development in the town of Muynak, several negative socio-cultural consequences were also highlighted during the formal expert interviews. One of the most frequently mentioned issues concerned the Stihia festival, which is held annually in Muynak. While the event attracts a large number of young visitors and contributes to the town's visibility as a dark tourism destination, many local residents expressed disapproval toward the festival. Their concerns primarily stemmed from perceived inappropriate behavior and cultural insensitivity exhibited by some participants.

As several respondents explained:

“We had some situations during the Stihia festival where some girls were naked in the streets. People complained about this and now they do not do it. This festival is big, and many people go to see it, and it is not good when people are half naked there. It is against our religion and culture.” (R3)

“They come with police protection, sing, dance, and get drunk and then they leave. I was at the police station at one time, and they had two participants there from the festival completely naked. They have no idea where their clothes are. They come from all over the world.” (R4)

Results

From the perspective of some experts, while the festival may bring short-term economic benefits to business owners, it simultaneously creates tension between local cultural norms and the behavior of visitors:

“Most people do not like the Stihia festival. It is good for some to make money but for most people, it is inappropriate. People are half-naked and drunk for three or four days.” (R14)

A recurring concern expressed by the interviewees was the potential moral and cultural influence on the younger generation. Elders in the community worried that exposure to behaviors inconsistent with local traditions and religious values could negatively affect their youth:

“Our kids are curious about this festival and go there but they see this nakedness and nonsense. It is against our religion.” (R7)

“We were already worried about our kids visiting some festivals here because sometimes it is not good for them.” (R17)

During the field observations and informal interviews, several residents suggested that the Stihia festival should either be relocated to a larger urban area such as Tashkent or Nukus—where residents may be more tolerant of diverse behaviors—or organized in a more isolated area outside the town. These residents emphasized their discomfort with the festival’s proximity to their community.

In contrast, local business owners within the tourism and hospitality sector held a more favorable view of such events. They highlighted that festivals like Stihia attract significant numbers of visitors and generate income for local enterprises, while also emphasizing that participation in the festival is entirely voluntary for local residents.

Vandalism

The second perceived negative socio-cultural impact identified by the local communities was vandalism, particularly in the form of writings and drawings on the ships located in the Cemetery of Ships (Figure 15). Although some experts emphasized that this issue is not yet widespread, they expressed concern that such activities could eventually contribute to the loss of authenticity and historical value of the site:

“In some ships you see writings and drawings, I think this is not good and must be stopped. The ships must be protected.” (R18)

Results

“You can easily climb the ships and walk around it. It’s good in a way but it is creating some waste in it and losing originality because of writings.” (R12)

“If you go to the ships right now, then you will see many writings and graffiti on them. People can easily climb and write on them. I am not sure if it is a good thing or not.” (R14)

During the field observations, graffiti and inscriptions were indeed visible on several ships, and there were no restrictions preventing visitors from approaching or climbing them. While this accessibility allows tourists to engage more closely with the relics and contributes to the immersive dark tourism atmosphere, it also poses a potential threat to the preservation of the site.

At present, the extent of vandalism may not be severe enough to cause major damage; in fact, some markings might even enhance the symbolic or artistic dimension of the Cemetery of Ships. However, if left unchecked, the growing number of writings and drawings could undermine the site’s authenticity and historical integrity in the future. Implementing basic preservation measures—such as guided access, informational signage, or protective barriers—could help mitigate this issue while maintaining visitor engagement.

Loss of Authenticity

Although not widely emphasized by most experts during the formal interviews, some respondents did highlight loss of authenticity as a potential concern in the ongoing development of dark tourism in the town of Muynak. As mentioned earlier, the local communities generally welcomed infrastructure improvements—particularly road construction and renovations. However, several experts expressed concern that extensive or inappropriate reconstruction efforts could threaten the original character of Muynak and erase potential heritage sites that hold value for international tourists:

“Because of many constructions we have lost some buildings I think that could have been a good heritage site.” (R12)

“The building now is so modern, that the number of tourists may decreased because they do not want these modern buildings. They wanted to do the same here at the cemetery of the ships but luckily, they stopped, and it is good. we want to keep things simple and authentic.” (R2)

Results

During the field observations, it was evident that the main road and many surrounding buildings had been completely renovated or newly constructed. From an urban development perspective, these improvements appear visually impressive and contribute to the modernization of the town. However, from a tourism standpoint, such extensive reconstruction could diminish the town's historical and cultural atmosphere, which is often what attracts dark tourists in the first place.

To experience the remaining traces of Muynak's older architecture and authentic environment, visitors must venture deeper into the residential areas. If future renovation projects are carried out without considering cultural preservation principles, the authenticity and emotional appeal of Muynak's dark tourism sites could gradually decline—or even disappear entirely.

4.3.3 Environmental Impact

The fourth and final perceived impact of dark tourism development in the town of Muynak identified by the local communities was environmental. Unlike the previously discussed economic and socio-cultural impacts, the environmental impacts were described as predominantly positive, with only one minor negative aspect mentioned. Specifically, increased environmental awareness, improved waste management, and tree-planting initiatives were highlighted as the primary positive environmental impacts associated with dark tourism, while waste generated during festivals was identified as a potential negative outcome.

Increased Environmental Awareness

Similar to other well-established tourism destinations in Uzbekistan, increased environmental awareness emerged as the most frequently mentioned perceived environmental impact of hosting international tourists in Muynak. This is largely due to the fact that many visitors come from countries where environmental protection, recycling, and responsible waste management are long-standing public priorities. As a result, when tourists from such backgrounds travel to Muynak, they tend to avoid littering and, in many cases, model environmentally responsible behaviour that influences local residents.

This recurring theme was strongly reflected in the formal expert interviews, where the majority of respondents emphasized that exposure to environmentally conscious tourists had encouraged local communities to adopt better waste-handling practices:

Results

Figure 15. Vandalism at Cemetery of Ships



Source: A. ALLABERGANOV 2025

Results

“I would say even that we learn from them on how to take care of the environment.” (R6)

“We learn from them. I have seen many times tourists do not drop the waste in the streets. They put them in the plastic bags and throw them away in the bins. There is no negative impact.” (R2)

“They do not create waste they carry their waste and put it in the bins, something that our people are also learning from them.” (R3)

“From regular tourists we have waste, they are very aware of these issues, so they do not drop waste here. In fact, we learn from them about environmental awareness.” (R7)

Observations during fieldwork further confirmed this trend. Key tourism sites—including the Cemetery of Ships, museums and their parking areas, the city centre, and the main streets—appeared generally clean and well-maintained, with minimal visible litter. The combination of tourist behaviour and gradual changes in local attitudes suggests that dark tourism has contributed meaningfully to improving environmental consciousness in Muynak.

Waste Management Improvements

In addition to the rise in environmental awareness among local residents, improvements in waste management practices were also noted as a positive environmental impact of dark tourism development in Muynak. According to respondents in the formal expert interviews, local authorities have recently taken more active measures to manage waste, particularly in areas frequently visited by tourists. A number of participants highlighted that new waste bins have been installed across the town, especially near major tourism sites:

“They made bins here for waste recently so there is no problem with that.” (R6)

“You know culturally we have good gastronomy and because of tourism we are improving waste management in Muynak. In some areas now they built waste bins.” (R18)

Field observations supported these statements, revealing that several waste bins had been placed in strategic locations such as the Cemetery of Ships, the museums, and their surrounding areas. These bins were generally clean, well-maintained, and easily accessible to visitors. Their

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presence not only facilitates proper waste disposal but also signals a broader effort by local authorities and tourism developers to maintain cleanliness in high-traffic tourist zones.

Photographs (Figure 16) taken during fieldwork further illustrate both the rise in environmental awareness among the local population and the waste management improvements implemented by municipal authorities and tourism stakeholders in Muynak.

Planting Trees

Perhaps the most visible environmental impact of dark tourism development in Muynak—though one of the least frequently mentioned in the formal expert interviews—is the planting of trees, particularly Saksaul, by visitors such as researchers, students, and volunteers. While not emphasized by the majority of respondents, several interviewees acknowledged the significance of these efforts. They noted that although tree-planting initiatives are promising, they remain in the early stages and require further development, maintenance, and promotion to contribute meaningfully to the environmental rehabilitation of the area:

“Trees here are planted by students, government, and NGOs. Many trees are planted.” (R2)

“Trees are planted by researchers and students, but it needs to be developed and maintained.” (R15)

Field observations supported these remarks. Most of the planted trees—primarily Saksaul, a drought-resistant species commonly used in desertification control—were located on the exposed seabed of the dried-up Aral Sea, particularly in areas surrounding the Cemetery of Ships. These plantations illustrate both the symbolic and practical contributions of dark tourism to environmental restoration efforts in Muynak.

The following images (Figure 17) show examples of Saksaul plantations situated on the former lakebed of the Aral Sea.

Festival Waste

Interestingly, none of the respondents initially identified negative environmental impacts associated with dark tourism during the formal expert interviews. However, when probed further, participants did acknowledge a minor issue related to waste generated during large events and festivals held in Muynak, such as Stihia or Rally. According to several respondents, waste accumulation does occur during these events, but they emphasized that it is generally managed effectively:

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“Yes, unfortunately there is some waste, especially after the festivals, but the government usually organized cleaning events to pick up the waste.” (R18)

“Some waste, yes, but it is not that big issue. Usually it is cleaned up quickly.” (R15)

“There are some waste, especially after the festivals near the ships. I think you can go there right now and see it for yourself. They do clean them up and I think it should be done constantly because now you can see still some waste around the ships and it is not good for the environment.” (R13)

Although festival-related waste was recognized as a negative impact, respondents consistently stressed that it does not pose a major environmental problem. This is largely attributed to the prompt cleanup efforts by local authorities and tourism organizers, ensuring that waste is removed shortly after events conclude. The following pictures (Figure 18) illustrate examples of festival waste left behind by dark tourism visitors.

Figure 16. Waste bins near dark tourism sites



Source: A. ALLABERGANOV 2025

Results

4.3.4 Perceived challenges

Language barrier

Although the local communities generally perceive dark tourism development in Muynak positively, several challenges limit further growth. One of the most frequently mentioned challenges is the language barrier, a common issue in newly developing tourism destinations. Many residents reported difficulties in communicating with international tourists:

“We have a language barrier. We just say hello in the streets when we see them. Nothing more at the moment.” (R1)

“There is a language barrier so that is a problem for most people. They use sign language.” (R3)

“If they speak Kazakh, Uzbek or Russian I can communicate with them. Other than that, we use sign languages.” (R6)

Figure 17. Saksaul and tree planting in Muynak



Source: A. ALLABERGANOV 2025

Results

Figure 18. Festival waste in Muynak



Source: A. ALLABERGANOV 2025

Language barriers were also evident during field observations. Although Muynak is located in Uzbekistan, most residents primarily speak the Karakalpak language, which can pose additional communication challenges for Uzbek-speaking tourists. To overcome these barriers, domestic tourists often resort to using Russian, enabling smoother interactions and participation in dark tourism activities.

Lack of water

The shortage of water in Muynak has long been a serious issue following the withdrawal of the Aral Lake, and it continues to affect local tourism and hospitality businesses. Many experts and business owners highlighted that maintaining high standards in hotels and guesthouses is challenging due to the limited availability of fresh water. Most facilities rely on water tanks filled with potable water because local sources are often too salty for drinking or bathing:

“We need water here really bad. There is no proper water in the buildings, hotels, and restaurants. Fresh water is needed.” (R1)

Beyond the basic needs of accommodation, some experts emphasized the importance of refilling local lakes to expand recreational options for tourists:

Results

“We need water here. They should refill the lakes and make some areas for swimming and fishing for the tourists.” (R4)

“Fill up the local lakes. There is no water here. We need water to drink, to farm and also develop more entertainment facilities and amenities besides these two museums and ships.” (R5)

“First it would be really nice to bring some water into the local lakes so that we can have some activities for tourists.” (R9)

“We used to have water in our small lakes here and fish. If they can refill the waters, then tourists will have a reason to stay one or two days to enjoy the lakes and fishing.” (R10)

“I think the best thing to do here is to refill some lakes with water so that we can fish and build fish cuisines around it. people would enjoy that more. But that lake is also drying up unfortunately. I think probably everything is connected to water.” (R11)

Field observations confirmed these concerns. For example, a lake at the southern entrance of Muynak, once a local landmark and compared by residents to Venice, has now dried up, leaving only small channels of fresh water flowing from the Amu Darya River.

Lack of experience in tourism

After language barriers, another major challenge perceived by the local community in Muynak is the lack of experience and knowledge in tourism development. Many respondents emphasized that most residents do not possess the expertise required to establish and manage tourism businesses, as the industry is relatively new in the region and was predominantly government-managed during the Soviet era:

“We have no much knowledge in tourism we do not what to do with it.” (R7)

“I think lack of experience and knowledge in tourism. Lack of capital is also a factor. For example, I do not know what I can do to be involved in tourism except just driving tourists. Even if I do I have capital.” (R6)

“Most people do not have the knowledge or the expertise to deal with the tourism industry. This is a new industry for us. The locals also think that it is

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difficult to work in this industry. Some people have guesthouses even if they do not have the knowledge or the expertise to deal in this business.” (R2)

“Some people do not work in the tourism industry and do not have the expertise or knowledge. Not even interested.” (R13)

“People do not know what to do in the tourism industry. They don’t have experience.” (R5)

“The government needs to help out the local people to engage in tourism in terms of education and capital more.” (R10)

Historically, Muynak was a fishing hub, and the majority of the local population’s livelihood centered around fishing and hunting. Many older respondents shared memories of their fishing days, showing photographs and recounting experiences:

“Our local people are not familiar with tourism things. They lack education and fantasy. We only know fish and fish soups (laughs).” (R15)

“You see people are not experienced in this industry. Big businessmen do not want to take a risk to develop tourism here so locals must be it themselves.” (R9)

In addition, a lack of knowledge in information technology and online marketing was highlighted by both experts and business owners. Many local entrepreneurs struggle to promote their properties or engage with tourists through digital platforms:

“I could not use Booking.com well. I had a fee there and I went to a bank here to pay for it, and they could not transfer my money. Then I met someone in Nukus who told me that I can pay it inside the website. Again, I had issues with that and could not use it properly.” (R5)

“We have many businesses here in terms of restaurants and guesthouses but some of them are not well promoted online or does not engage with customers online.” (R16)

During field observations, it was evident that while some business owners had online accounts on Booking.com or other platforms, they were often unfamiliar with how to use them effectively. In several cases, even domestic tourists had to assist them in navigating these online systems. This highlights that building knowledge and skills in business management and online

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engagement remains a critical challenge for the local community to fully benefit from dark tourism development.

Lack of awareness

Despite ongoing efforts to promote dark tourism in Muynak, many local residents remain unaware of existing tourism initiatives and programs:

“To be honest, I am not aware of any funds or associations. I never heard of one. Maybe some exist, but I do not know. Maybe they use it themselves.”

(R1)

“I do not know much about tourism development committee. Perhaps there is some programs and association in the area or maybe in Nukus, but I am not aware of any.” (R15)

This indicates that while tourism development is advancing, communication and outreach to the local communities could be strengthened to ensure broader engagement and understanding of available opportunities.

Financial burdens

Another major challenge preventing local communities from fully engaging in dark tourism in Muynak is the lack of financial resources. According to experts in the local tourism sector, most residents do not have the capital required to start or expand tourism-related businesses:

“Capital I would say. For example, I need more capital to continue my business... If I borrow from my Bank, they will start collecting their money before I have used their capital.” (R10)

While some loans and financial support programs are technically available from local banks, many residents are hesitant to access them due to fears of being unable to repay, or because banks are reluctant to lend to individuals with limited tourism experience:

“They do not give credit to us. Maybe they fear that we have no experience in doing business in tourism and cannot repay them.” (R5)

“People here do not want to take a loan as they do not know anything about tourism. Also, the loans are not very cheap. You must start paying right away even though you have not started your business yet. I think these loans should be friendlier for the locals to start a business.” (R9)

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Furthermore, some respondents highlighted that even when grants or loans are available, local residents often remain unaware, or the resources are taken by outsiders from other towns:

“If there is anything beneficial or money-related it is taken away by people outside of the town, locals do not have money to engage in tourism.” (R5)

Financial constraints thus remain a significant barrier for local communities wishing to participate in the development of dark tourism in Muynak. Field observations confirmed that many residents are either unemployed or face difficult financial situations, limiting their ability to invest in tourism ventures and benefit from the industry.

Promotion

Like other tourism destinations in Uzbekistan, such as Bukhara and Samarqand, Muynak still lacks international recognition and requires more extensive promotional efforts. This issue was highlighted by several experts during interviews:

“We need to work on promotions; the area is still not well known for tourism.” (R2)

“As you have said yourself, our community and tourism potential of our town is not popular and needs to be promoted.” (R13)

The lack of awareness about Muynak’s dark tourism offerings is not limited to international visitors. Many domestic tourists are also unfamiliar with the town’s tourism potential, a trend that was evident during fieldwork in Samarqand, Bukhara, and Muynak. While Samarqand and Bukhara attracted considerable local tourist activity, Muynak saw relatively few domestic visitors.

Hygiene and Hospitality

A critical component of tourism and hospitality development is the standard of hygiene and the quality of services offered to international visitors. Experts highlighted that local community members involved in dark tourism in Muynak need to increase their awareness and improve service standards:

“We need to improve hygiene here. For example, at the Hotels and restaurants. Of course, they are trying but it needs a lot of work.” (R2)

“Have you noticed that the menu is in Russian alphabet? This is also not a good start for the development of tourism. Tourists cannot read that. They

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should put that in Latin and also the menu must have the ingredients and content available. Next, the condition of the restaurants is not clean. I have seen dogs passing through restaurants where people were eating, this is not hygienic. Of course, in some cultures it is ok but in other cultures they might not like that. Again, I am not criticizing the locals in Muynak. I think they need some seminars on how to build a good restaurant or hotels to meet the minimum standards to attract tourists. I have seen some tourists who came back from Aral Lake because they did not want to stay in the yurts there because it was really dirty let us say.” (R11)

“I have seen a situation where two Chinese tourists could not order in the restaurant as they could not read the menu, so they had to come to my table and show the food to the waitress what they want to eat. This was a bit embarrassing to be honest.” (R18)

Although the streets of Muynak were generally clean, field observations showed that some restaurants fell short in hygiene and service quality. Additionally, menus were sometimes written in Cyrillic, making it difficult for Western European tourists to understand the offerings.

Tourism Amenities

A significant challenge for tourism and hospitality development in Muynak, including dark tourism, is the lack of adequate amenities and facilities for visitors. Despite recent infrastructure improvements and growing international interest, most tourists do not stay long in Muynak, limiting the potential economic benefits for the local community. Experts and residents consistently noted that visitors primarily come to see the cemetery of ships and the Aral Lake but rarely spend the night in the town:

“They come for a short period to see the ships, and they go to the Aral Lake and then they leave. They do not even stay a day.” (R4)

“I get 2 or 3 tourists per week. They come to stay the night, and they ask me to find them a driver to Aral Lake, which I do. 2 or 3 is not enough or small number per week to be honest. So, most tourists do not stay here.” (R10)

“Tourists just come here for short period of time to see the ships and off they go to the Aral. Most of them do not stay here overnight.” (R6)

“We do not feel tourist presence much. They come and leave.” (R14)

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“They do not even stay here that long. They go to the hotel to get a stamp that they were here, maybe to get some kind of financial reimbursement and they leave.” (R1)

Many experts also noted that tourists prefer to stay in Nukus, which offers better facilities and a wider range of services, further explaining the limited economic impact on Muynak:

“Most of the time they come in the morning and see everything before the evening, and they take off to Nukus where they have a hotel. I think they have more amenities and fun activities here.” (R10)

“Tourists do not stay here for a long time. Usually, they come here for few hours and leave. Only few of them stay the night. Mostly they are brought by Nukus or other tour companies, and they show them around and in the same day. Here in Muynak they rarely spend a night. If they spend a night, it is usually at the Aral Lake not here.” (R9)

“Last night there was a tourist who came to Nukus, I was driving him, and he told me to take him back to Nukus, because he was done in Muynak like in few hours. Most people do not stay in Muynak for a long time. Most tourists are done seeing Muynak in few hours unless they want to go to the Aral Lake but again, they go to Aral lake and stay there.” (R11)

Field observations confirmed that tour operators typically visit the museums and cemetery of ships for a few hours, taking photos and resting before returning to Nukus or Khiva. The town lacks entertainment and other facilities to encourage longer stays. Experts emphasized the need for additional tourism amenities to enhance the visitor experience:

“They need to have some entertainment as well.” (R4)

“Tourists need some entertainment or other activities besides the shipyard. For example, they can organize desert tours and even balloon riding like they do in other deserts, but for that we need experience and capital.” (R7)

“You saw how winding it is here right? I think another thing can be paragliding at the plateaus. This is also very attractive activity for locals and tourists.” (R9)

“We can also organize some local tours in the desert.” (R17)

Results

“People need to start organizing different activities in Muynak to keep the tourists. For example, we have camels and horses. Camel and horse tours can be organized in the area. I have seen paragliding and quadricycle riding in the different parts of Uzbekistan. I think this can also be organized here.”

(R10)

“By the way I just remembered, camel tours will be really nice in the desert like in Dubai, we have a lot of camels here. Make a tea and food with the Saksaul wood and stay a night in the desert, that could be very interesting.”

(R11)

Cultural events and festivals were also identified as tools to increase tourist engagement and extend their stay:

“For example, if we organize and promote events or festivals then that could help out. For example, there is a festival called dishes from fish. It is a great festival to showcase the local culture as well as making the tourists stay longer. I think these kinds of festival must developed and promoted.” (R11)

“Tourists really enjoy and are curious about our culture and traditions. I think events geared toward this kind of activities would be better like dishes from fish or rallies. They are more enjoyable events.” (R9)

“I would say develop events and festivals more. But they should be local friendly as you know the local people are sensitive to outside culture so the events must be friendly to the local people. Also put fish dishes in the menu that tourists can try. For example, the event of dishes from fish is few days event but if they tourists did not make it, he or she should be able to try it out in the local restaurants. They should also add more activities in Muynak to keep the tourists in town for a day at least.” (R11)

In addition to amenities, transportation infrastructure requires improvement, particularly roads leading into Muynak:

“Take a look at the road outside of Muynak and it is in a horrible situation; it looks like war just happened there. You will see craters on the roads, really embarrassing for tourists. I have seen many tourists driving on these roads, and I feel really ashamed.” (R11)

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“The roads still need more improvements, especially the road outside of the town between Muynak and Kungirad.” (R2)

“They need to renovate all the roads, especially they one that bring tourists to town. It is in horrible situation.” (R6)

“Improve the roads. The roads that bring tourists here are in horrible condition. Some tourists come here on bikes or motorcycles, and these roads are horrible for that. We had an accident on this road. Luckily it was a local tourist who fell down with his bike. If it was an international tourist, then that is a big shame for us.” (R3)

“You can see this road to Muynak is in horrible condition which needs to be repaired as soon as possible.” (R9)

Finally, several experts highlighted the potential for empowering local youth and women through tourism. Handicraft production and souvenir making, as seen in other Uzbek destinations like Bukhara and Samarqand, could provide income opportunities while enriching the visitor experience. Currently, souvenir options in Muynak are extremely limited, with the only available items found at the museum near the cemetery of ships:

“When I was in Bukhara and Samarqand, I saw many souvenirs, which lacks here. I think locals, maybe even women can make some handicraft and sell it to the tourists during the events and festivals.” (R11)

4.4 Qualitative Summary

In summary, the perceived development of dark tourism in Muynak, from the perspective of local communities, has been largely transformative. This transformation has occurred over an extended period following the Aral Lake disaster, shaping the town’s economic, socio-cultural, and environmental landscape. As a result of dark tourism development, several significant impacts and challenges were identified, which were grouped into three main categories: economic, socio-cultural, and environmental.

To examine how these perceived impacts and challenges influence local residents’ support for further dark tourism development, a quantitative study was conducted. Based on the findings of the qualitative research, a conceptual model linking perceived impacts and challenges to residents’ support for tourism development was developed (Figure 19). The following hypotheses were proposed for testing:

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H_{0a}: Perceived economic impacts do not significantly influence residents' support for tourism development.

H_{1a}: Perceived economic impacts significantly influence residents' support for tourism development.

H_{0b}: Perceived socio-cultural impacts do not significantly influence residents' support for tourism development.

H_{1b}: Perceived socio-cultural impacts significantly influence residents' support for tourism development.

H_{0c}: Perceived environmental impacts do not significantly influence residents' support for tourism development.

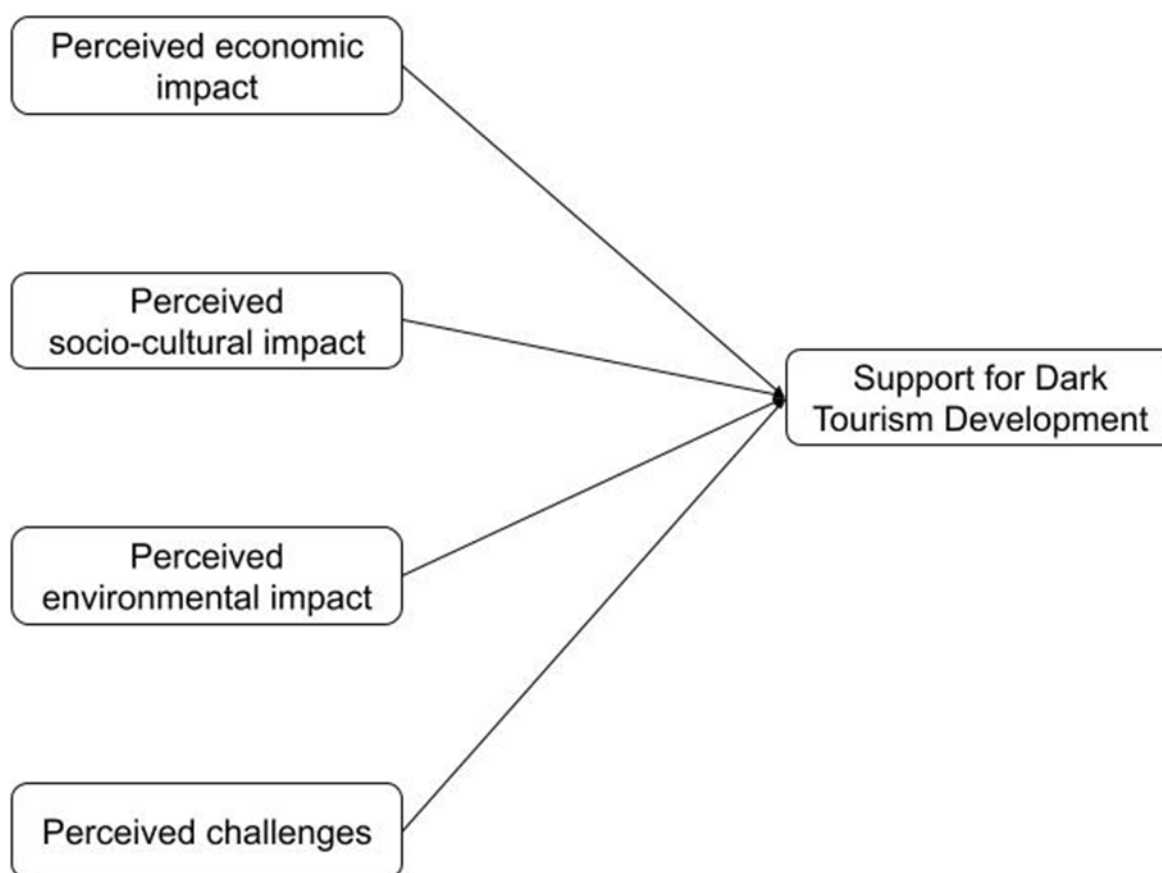
H_{1c}: Perceived environmental impacts significantly influence residents' support for tourism development.

H_{0d}: Perceived challenges do not significantly influence residents' support for tourism development.

H_{1d}: Perceived challenges significantly influence residents' support for tourism development.

This framework allows for a systematic assessment of how local perceptions of both benefits and constraints shape community support for the continued growth of dark tourism in Muynak.

Figure 19. Conceptual model of impacts and challenges



Source: Draft A. ALLABERGANOV 2025

4.5 Quantitative Demographics

Demographic analysis of the survey respondents on the perceived development of dark tourism in Muynak and its associated impacts and challenges indicates a fairly balanced representation of the local population (Table 2). Gender distribution showed a slight predominance of females (53.9%) compared to males (46.1%).

Regarding age, the respondents were well-distributed across different age groups, with the largest group aged 18–25 years (29.8%), followed by 36–45 years (25.7%), 26–35 years (14.7%), 46–55 years (14.1%), 56–60 years (10.5%), and over 60 years (5.2%).

Marital status distribution showed that the majority of respondents were married (70.2%), followed by single (27.2%) and divorced (2.6%), reflecting the general trends in Muynak and Uzbekistan. In terms of occupation, most respondents were employed outside the tourism sector (44.5%), while 30.4% were unemployed or disabled, 13.6% were retired, and 11.5% were employed in tourism-related activities.

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The survey also captured the length of residence in Muynak, showing that the overwhelming majority (81.7%) had lived in the town for over 20 years, followed by 16–20 years (15.2%), 11–15 years (2.1%), 6–10 years (0.5%), and 1–5 years (0.5%).

Regarding education, most respondents had completed college (52.4%) or high school (35.1%), with smaller proportions holding undergraduate (7.9%) or graduate degrees (4.7%).

Finally, monthly income levels largely aligned with general population trends in Uzbekistan. The majority earned less than 3,000,000 sums (70.2%), followed by 3,000,000–5,000,000 sums (23.6%), 5,000,000–10,000,000 sums (5.8%), and more than 10,000,000 sums (0.5%).

4.6 Descriptive Statistics

The first stage of the quantitative analysis focuses on examining whether the survey data supports the findings of the qualitative study, particularly in addressing the first research question regarding the development of dark tourism in Muynak. This section analyzes respondents' perceptions of why tourists visited the area before and after the Aral Lake dried up, providing insight into whether the patterns identified during interviews are reflected in the survey results. The following charts (Figure 20 and Figure 21) summarize local residents' views on the main reasons for tourism across two distinct periods, enabling a comparison between earlier tourism trends and the emergence of dark tourism.

According to the first chart (Figure 20), most respondents indicated that tourism in Muynak prior to the drying of the Aral Lake was largely motivated by research and educational interests. Approximately 77% of participants believed visitors came primarily to study and understand the Aral Lake disaster, highlighting the scientific and environmental appeal of the region during that period. At the same time, 68.6% of respondents reported that recreational purposes, such as swimming in the lake, attracted tourists, while 67% noted that visitors were drawn by resort facilities for relaxation, sun, and leisure. Cultural motivations were comparatively less prominent, with 63.9% of respondents suggesting that tourists visited to experience local traditions and lifestyles. Overall, these findings indicate that prior to the lake's disappearance, tourism in Muynak combined both educational and recreational elements, with research-driven visitation being particularly significant.

Results

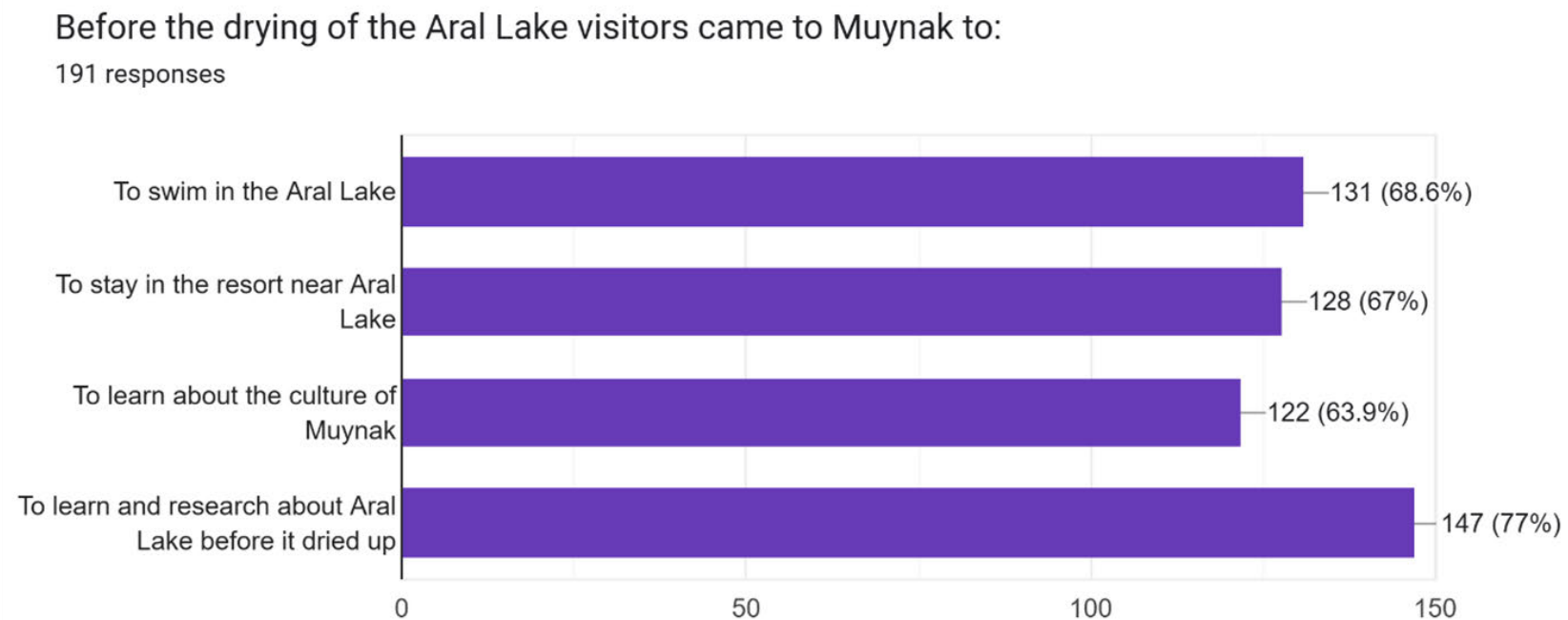
Table 2. Demographic profile of survey respondents

Items	Demographics	Frequency	Percent
Gender	Male	88	46.1
	Female	103	53.9
Age	18-25	57	29.8
	26-35	28	14.7
	36-45	49	25.7
	46-55	27	14.1
	56-60	20	10.5
	Over 60	10	5.2
Marital Status	Single	52	27.2
	Married	134	70.2
	Divorced	5	2.6
Occupation	Tourism related	22	11.5
	Non-tourism related	85	44.5
	Retired	26	13.6
	Unemployed/disabled	58	30.4
Length of residency	1-5 years	1	.5
	6-10 years	1	.5
	11-15 years	4	2.1
	16-20 years	29	15.2
	Over 20 years	156	81.7
Education	High school	67	35.1
	College	100	52.4
	Undergraduate	15	7.9
	Graduate	9	4.7
Monthly income	< 3,000,000 sums	134	70.2
	3,000,000 – 5,000,000 sums	45	23.6
	5,000,000 – 10,000,000 sums	11	5.8
	> 10,000,000 sums	1	.5

Source: Draft A. ALLABERGANOV 2025

Results

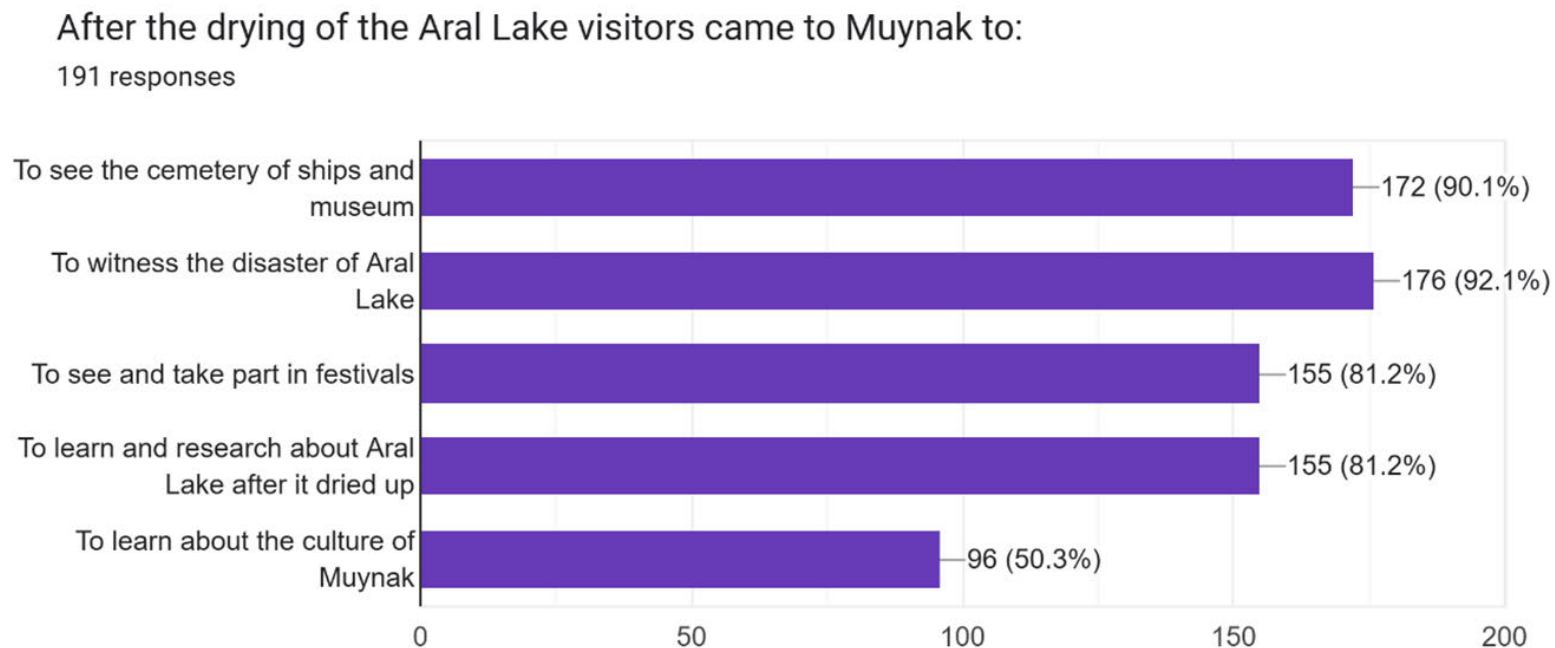
Figure 20. Visitation before Aral Lake disaster



Source: Draft A. ALLABERGANOV 2025

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Figure 21. Visitation after Aral Lake disaster



Source: Draft A. ALLABERGANOV 2025

Results

The second chart (Figure 21) illustrates a marked change in tourist motivations after the drying of the Aral Lake. Over 92% of respondents stated that visitors now primarily come to witness the environmental disaster itself, transforming Muynak into a destination of environmental remembrance. Similarly, more than 90% indicated that tourists are interested in the ship cemetery and the local museum, which have become key symbols of the ecological tragedy. Additionally, 81% noted that visitors continue to engage in research and academic study related to the Aral Sea crisis, as well as attend disaster-related festivals. Cultural reasons remained comparatively less significant, with just over half of the respondents reporting that tourists visit to learn about the local community and traditions.

Comparing the two time periods highlights a clear shift in the nature of tourism in Muynak. Before the Aral Lake dried up, tourism was closely tied to recreation and research, supported by the natural beauty and resort potential of the area. Following the environmental disaster, tourism has become predominantly focused on the aftermath of the catastrophe—what can be described as dark tourism—where visitors are motivated by curiosity about the ecological crisis and its consequences. This transformation reflects both the changing physical landscape of Muynak and the adaptation of local tourism strategies to new realities, emphasizing memory and awareness over leisure.

These quantitative results align closely with the qualitative findings. Interview participants similarly reported that, prior to the lake's drying, tourists visited mainly for relaxation, swimming, and research. After the environmental disaster, however, visitors' motivations shifted toward observing the impacts of the drying lake and exploring sites such as the ship cemetery and museum. The consistency between qualitative and quantitative findings reinforces the conclusion that tourism in Muynak has undergone a fundamental change—from a leisure-oriented destination to one defined by environmental memory and dark tourism.

4.7 Exploratory Factor Analysis

An Exploratory Factor Analysis (EFA) was conducted to identify the underlying structure of the survey items measuring residents' perceptions, perceived challenges, and support for dark tourism development in Muynak (Table 3). The purpose of the EFA was to determine whether the items grouped into coherent latent constructs that could be used in the subsequent stages of the quantitative analysis.

The analysis showed that the items formed clear and interpretable factors, with loadings ranging from 0.41 to 0.86, demonstrating acceptable convergent validity (FIELD 2013; FIELD

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2024). Items reflecting economic perceptions loaded strongly on a single factor, particularly those related to improved infrastructure and income-generating opportunities. Socio-cultural perception items also loaded well, capturing both positive elements such as cultural exchange and language acquisition, as well as concerns like vandalism at tourism sites. Environmental perception items showed moderate to high loadings, indicating a consistent set of responses linked to changes in the physical landscape, tree planting efforts, and increased environmental awareness. Items measuring perceived challenges and support for tourism similarly aligned with their intended factors, confirming the strength of their conceptual fit.

Composite Reliability (CR) was calculated to evaluate the internal consistency of each factor. The CR values ranged from 0.70 to 0.89, demonstrating satisfactory reliability (HAIR, BLACK, BABIN, ANDERSON 2010; HAIR, HULT, RINGLE, SARSTEDT 2014). Mean scores and standard deviations were also examined: economic perceptions had a mean of 3.1 (SD = 0.5), socio-cultural perceptions 2.5 (SD = 0.8), environmental perceptions 3.6 (SD = 0.7), perceived challenges 3.0 (SD = 0.5), and support for tourism 4.3 (SD = 0.6). These results suggest that respondents generally supported tourism development, recognized environmental implications more strongly than socio-cultural ones, and expressed moderate concerns regarding challenges.

The Kaiser–Meyer–Olkin (KMO) measure was used to assess sampling adequacy for each factor. Values were 0.73 for economic perceptions, 0.78 for socio-cultural perceptions, 0.73 for environmental perceptions, 0.62 for perceived challenges, and 0.64 for support for tourism. These results indicate that the items within each construct were appropriate for factor analysis. In addition, Bartlett’s test of sphericity was significant ($p = 0.001$), confirming that the correlations among items were sufficient for factor extraction (KAISER, RICE 1974; FIELD 2024).

In summary, the EFA validated the structure of the survey instrument. The strong factor loadings, reliable constructs (CR = 0.70–0.89), and supporting descriptive statistics confirm that the items effectively captured the intended dimensions of economic, socio-cultural, and environmental perceptions, as well as perceived challenges and support for tourism. These validated constructs were subsequently used to assess how perceived impacts and challenges influence community support for dark tourism development in Muynak.

Results

Table 3. Exploratory factor analysis

Items	Factor loadings	CR	KMO	P value	Mean	SD
<i>Economic perceptions</i>						
		0,89	0,73	0,001	3,1	0,5
Infrastructure improvements	0,82				4,4	0,7
Museums and Cemetery of ships	0,56				4,4	0,6
Job creation	0,67				2,5	1,1
Earning opportunities	0,80				2,5	1,1
Increased standards of living	0,86				2,4	1,1
Business ventures	0,61				2,5	1,3
Limited economic benefits	0,53				2,6	1,1
Limited jobs	0,73				2,5	1,2
Foreign business ventures	0,54				3,4	1,1
<i>Socio-cultural perceptions</i>						
		0,81	0,78	0,001	2,5	0,8
Increased attention	0,67				2,2	1,0
Cultural exchange	0,82				2,9	1,2
Learning languages	0,56				2,9	1,2
Learning business management	0,60				3,0	1,3
Inappropriate festivals	0,59				2,0	1,1
Lack of cultural pride	0,50				2,4	1,2
Museum vandalization	0,49				2,0	1,1
<i>Environmental perceptions</i>						
		0,72	0,73	0,001	3,6	0,7
Increased awareness	0,46				3,6	1,1
Tree planting	0,51				4,3	0,8
Increased jams	0,69				3,2	1,2
No waste management	0,63				3,5	1,1
Change of landscape	0,60				3,2	1,3
<i>Perceived Challenges</i>						
		0,74	0,62	0,001	3,0	0,5
Language barrier	0,76				3,9	1,0
No tourism experience	0,55				4,0	1,1
Unclear policy communication	0,41				4,0	1,0
Lack of promotion	0,81				1,6	0,9
Lack of amenities	0,41				1,4	0,7
<i>Support for tourism</i>						
		0,70	0,64	0,001	4,3	0,6
I support tourism	0,55				4,1	1,0
I want to see more tourism	0,82				4,4	0,7
Locals should support tourism	0,61				4,5	0,7

Source: Draft A. ALLABERGANOV 2025

4.8 Predictive Factor Analysis

A multiple linear regression analysis was performed to investigate the extent to which local communities' perceptions—specifically economic, socio-cultural, and environmental perceptions—along with perceived challenges, predicted support for tourism development in Muynak (Figure 22). The overall model explained a meaningful proportion of the variance in support for tourism, indicating that these factors collectively contribute to residents' attitudes.

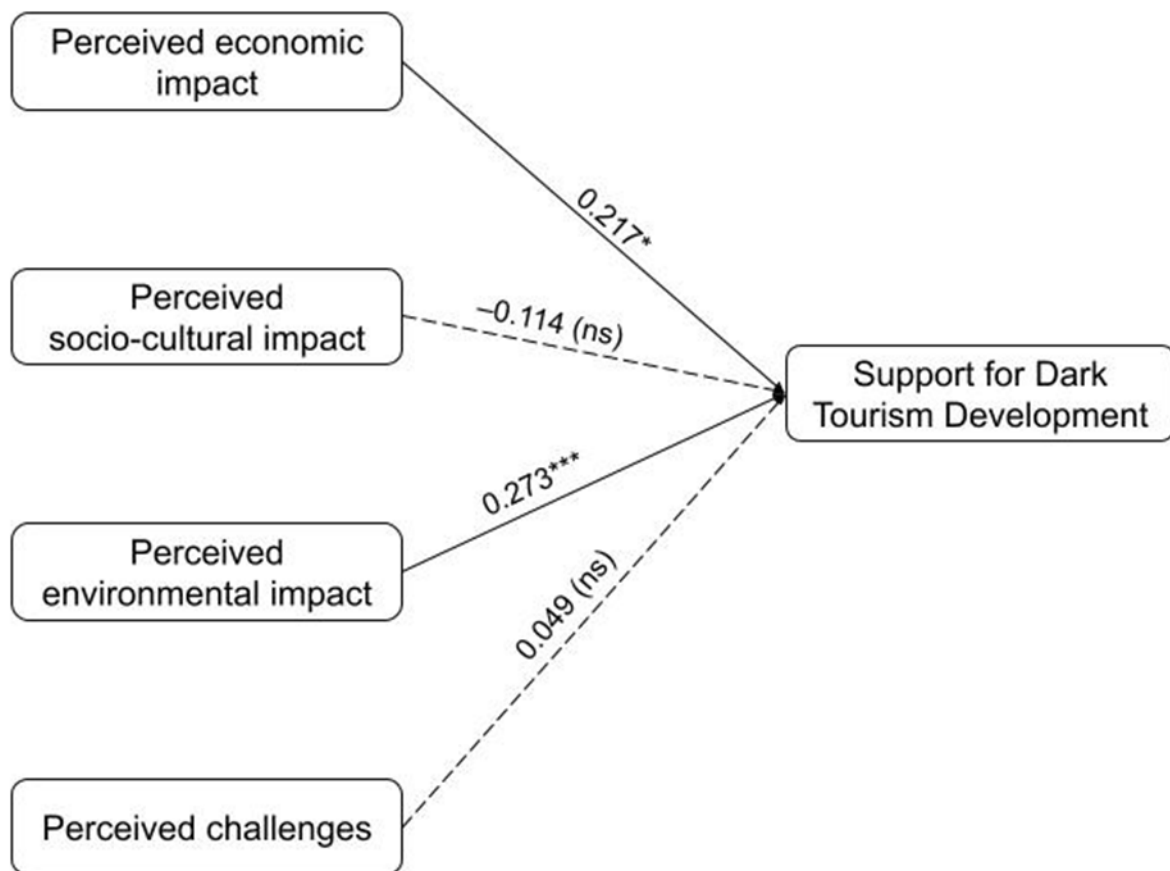
Examining the individual predictors revealed that economic perception was a significant positive predictor ($B = 0.259$, $\beta = 0.217$, $t = 2.372$, $p = 0.019$), thereby supporting H_{1a} . This indicates that respondents who perceived greater economic benefits from tourism were more likely to express support for tourism development. Environmental perception also emerged as a significant positive predictor ($B = 0.240$, $\beta = 0.273$, $t = 3.738$, $p < 0.001$), supporting H_{1c} , suggesting that heightened awareness of environmental impacts and participation in environmentally positive behaviours were associated with stronger support for tourism initiatives.

In contrast, socio-cultural perception ($B = -0.090$, $\beta = -0.114$, $t = -1.252$, $p = 0.212$) and perceived challenges ($B = 0.066$, $\beta = 0.049$, $t = 0.708$, $p = 0.480$) were not significant predictors, leading to the acceptance of H_{0b} and H_{0d} , respectively. These results indicate that, within the context of Muynak, socio-cultural considerations and perceived barriers related to tourism development were less influential in shaping local community support for dark tourism initiatives.

Collinearity diagnostics confirmed that multicollinearity was not a concern, with all variance inflation factors (VIFs) below 2, indicating that the predictors were sufficiently independent to produce reliable estimates. Overall, these findings underscore the importance of economic and environmental factors in fostering community support for tourism, aligning with the constructs identified in the preceding exploratory factor analysis.

Results

Figure 22. Multiple linear regression analysis



Source: Draft A. ALLABERGANOV 2025

Note. Values represent standardized regression coefficients (β). Significance levels: * $p < .05$, ** $p < .01$, *** $p < .001$. (ns) indicates a non-significant relationship.

5.0 Discussion and Conclusion

5.1 Discussion

The primary aim of this study was to explore and understand the perceptions of local communities in Muynak regarding the development of dark tourism following the Aral Lake's withdrawal, examining both its impacts on their well-being and their attitudes toward further tourism development. The study addressed three research questions using an exploratory sequential mixed-methods design:

1. What are the perceptions and experiences of local communities regarding the transformation of Muynak into a dark tourism site?
2. How do local communities in Muynak perceive and experience the impacts and challenges of dark tourism development?
3. To what extent do perceived impacts and challenges influence local communities' support for dark tourism development in Muynak?

The discussion of findings follows the order of these research questions, starting with the development of dark tourism in Muynak during and after the Soviet Union, followed by its socio-economic and environmental impacts on local communities, and concluding with local support for future tourism development.

Using semi-structured interviews guided by Social Exchange Theory (SET), several important insights emerged regarding the transformation of Muynak into a dark tourism site and the associated experiences and challenges of local residents. A key finding is that dark tourism in Muynak did not emerge overnight; rather, it developed gradually, beginning during the Soviet era. This represents a novel contribution to the dark tourism literature, as most well-known dark tourism destinations, such as Chernobyl (YANKOVSKA, HANNAM 2014) or New Orleans following the Hurricane Katrina (SHONDELL MILLER 2008; ROBBIE 2008), became tourist sites primarily as a direct result of a specific event, rather than through an ongoing transformation. In contrast, Muynak (Figure 23) illustrates a case of transformative dark tourism, where the town's tourism and hospitality industry evolved from one form to another over time.

During the Soviet period (1960-1991), Muynak initially welcomed domestic tourists, followed by visitors from Eastern European countries, including East Germany. Tourism during this era

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was primarily leisure-oriented, centered around the Aral Lake, which still contained sufficient water for swimming and recreational activities. A resort was built to accommodate these visitors, reflecting the limited, state-managed nature of tourism at the time. Unlike contemporary international tourism, local businesses were largely constrained by state ownership, restricting private enterprise and innovation.

As the Aral Lake began to recede in the later years of the Soviet Union, the number of tourists gradually declined, and the resort was eventually abandoned and demolished. Nevertheless, a steady, albeit smaller, flow of tourists persisted, drawn to the region's emerging environmental disaster. Following the collapse of the Soviet Union in the early 1990s, Muynak's tourism began to take on a distinctly dark character, although it was not formally labeled as "dark tourism" at that time. Visitors were increasingly interested in witnessing the environmental consequences of the Aral Lake's retreat, reflecting the town's darker heritage.

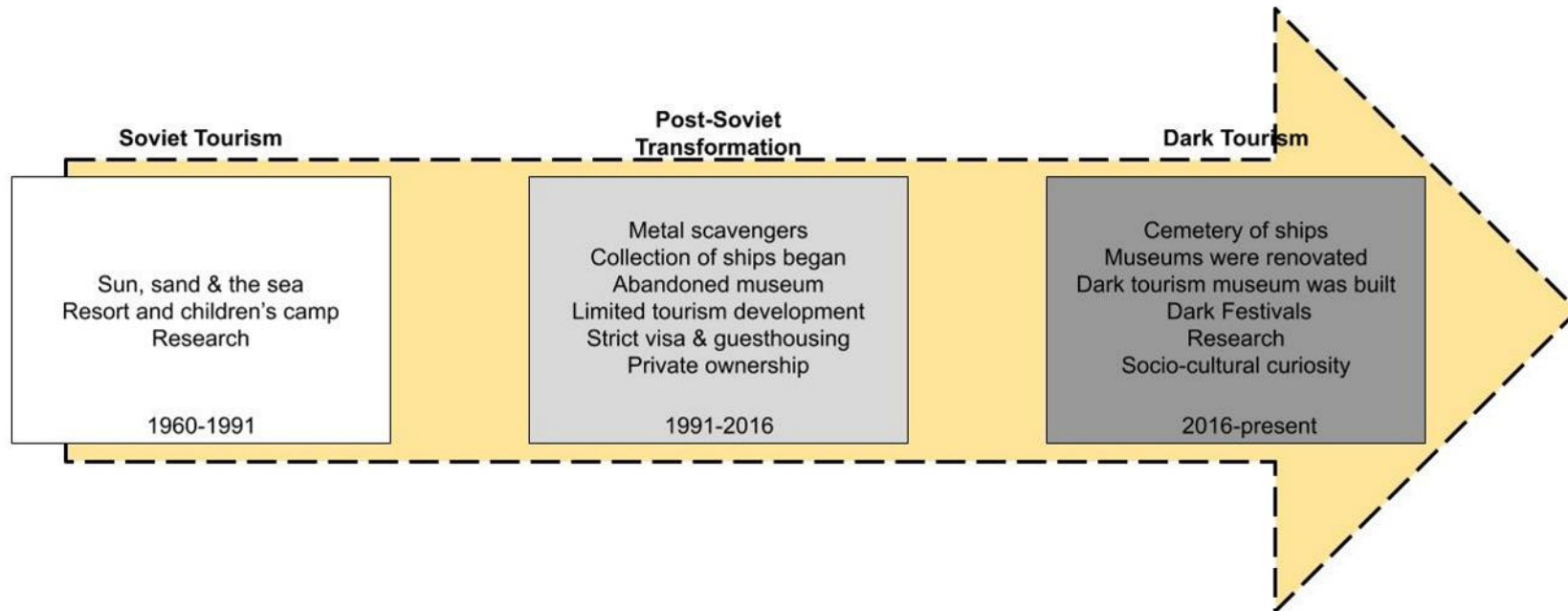
Dark tourism in Muynak became more prominent in the early 2000s with the creation of the "ship cemetery," formed from various vessels abandoned on the dried lakebed. The assembly of these ships was initially driven by metal scavengers in the 1990s, but it inadvertently established a site that today symbolizes the environmental and cultural dissonance of the region. Since then, Muynak has gradually solidified its identity as a dark tourism destination, attracting visitors seeking to witness the ecological disaster, attend related festivals, and engage in research.

Following 2016, dark tourism development in Muynak accelerated significantly, largely due to government attention and investment in the area. Notable infrastructural improvements were made around the ship cemetery, including the construction of museums, hotels, and restaurants, alongside the organization of festivals commemorating the Aral Lake disaster.

The quantitative findings further supported the narrative of Muynak's gradual transformation into a dark tourism destination. The overwhelming majority of respondents indicated that, during the Soviet period, tourism in Muynak primarily revolved around leisure activities and visits to the Aral Lake, with a smaller proportion of tourists arriving out of cultural interest. However, following the dissolution of the Soviet Union and the subsequent retreat of the lake, tourist motivations shifted considerably. Visitors increasingly came to observe the consequences of the environmental disaster, explore dark heritage sites, and conduct research related to the Aral Sea crisis, while cultural curiosity remained relatively limited.

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Figure 23. Development of dark tourism in Muynak



Source: Draft A. ALLABERGANOV 2025

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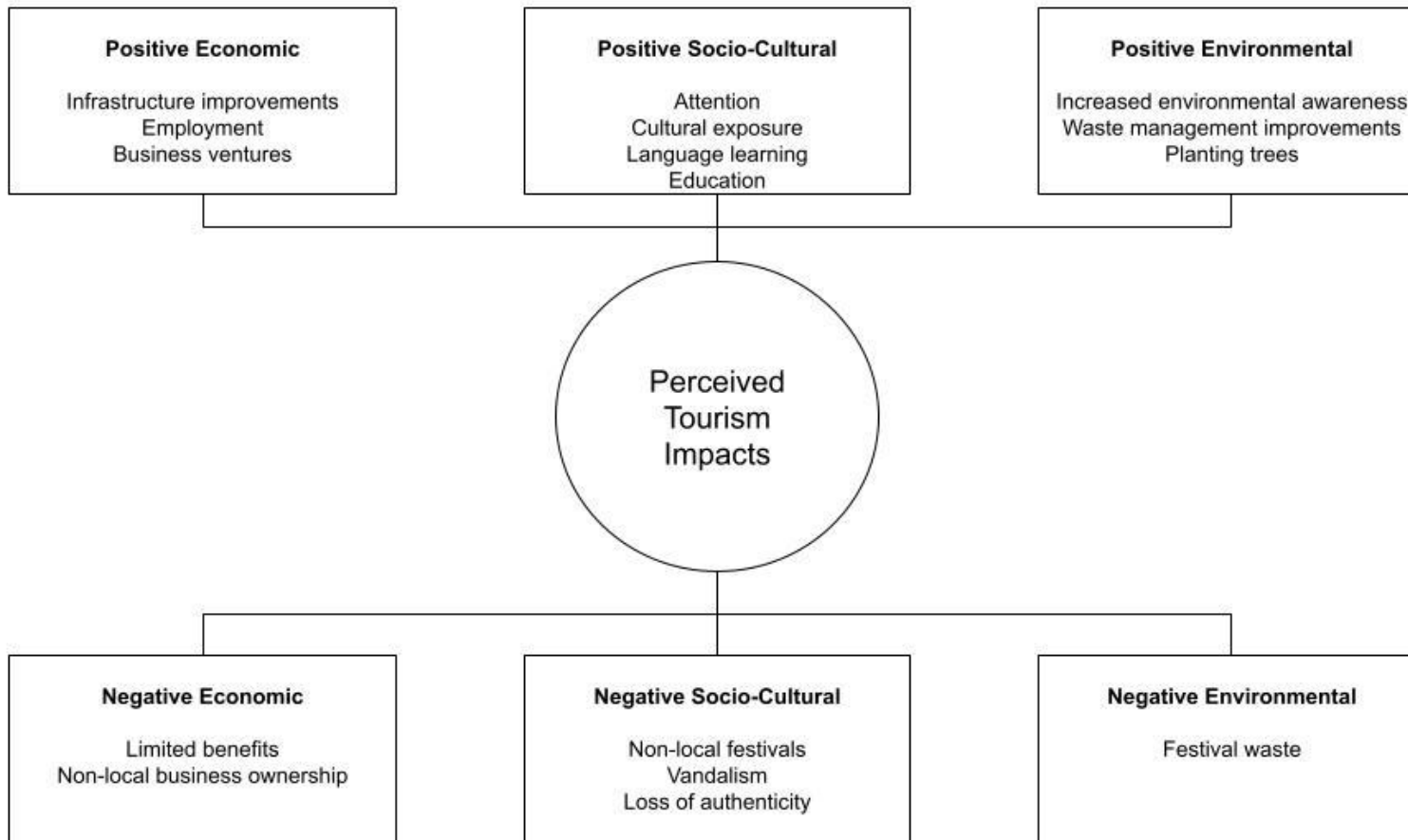
In summary, the development of dark tourism in Muynak represents a gradual and transformative process rather than an immediate response to a singular event. This process underscores the unique evolution of tourism in the region, where environmental tragedy, historical legacy, and local community engagement intersect to shape a distinctive form of dark tourism.

The next research question and objective focused on understanding the perceived impacts and challenges of dark tourism development in Muynak from the perspective of local communities. It is well established that the development of tourism and hospitality industries affects local communities, shaping their perceptions and attitudes toward these changes (JUROWSKI ET AL. 1997; ANDERECK ET AL. 2005; LAI, HITCHCOCK 2017). Using Social Exchange Theory (SET) as a guiding framework, this study identified several economic, socio-cultural, and environmental impacts (Figure 24), alongside challenges associated with dark tourism development in Muynak.

Perceived economic impacts were predominantly positive, including improvements in infrastructure, creation of employment opportunities, and the emergence of local business ventures, consistent with findings from other tourism contexts (ANDERECK ET AL. 2005; ÖZEL, KOZAK 2017; LIU ET AL. 2022; PANAYIDOU ET AL. 2024; GAYO, KATONGE 2025; ABDURAKHMANOVA, AHROROV 2025). However, some negative economic consequences were also reported, such as foreign business ownership and limited distribution of tourism benefits to the local community, aligning with prior research on emerging tourism destinations (MBAIWA 2005b; LACHER, NEPAL 2010; SHENG, TSUI 2010; JÖNSSON 2015; ALAM, PARAMATI 2016; SAARINEN, WALL-REINIUS 2019; KRONENBERG, FUCHS 2022). These mixed economic perceptions can be attributed to the early stage of tourism development in Muynak (KARAKALPAKSTAN 2025). Initial changes often produce modest impacts, such as infrastructure upgrades and job creation, which primarily benefit those directly involved in tourism. Without careful management, such early-stage development can exacerbate inequalities within the local community (STRICKLAND-MUNRO ET AL. 2010; CHIDAKEL, CHILD, MUYENGWA 2021; CASTILHO, FUINHAS 2025).

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Figure 24. Perceived impacts of Dark tourism development



Source: Draft A. ALLABERGANOV 2025

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Following the economic perceptions, several notable socio-cultural impacts of dark tourism development in Muynak were identified. On the positive side, dark tourism has increased the visibility of the town, resulting in greater governmental attention and improved interactions between visitors and local residents. These encounters have encouraged language learning, enhanced business knowledge, and facilitated cultural exchange—findings that echo previous research on tourism-induced socio-cultural benefits (GJERALD 2005; AKOVA, ATSIZ 2019; BESCULIDES ET AL. 2002; ALLABERGANOV, CATTERALL 2023). However, some socio-cultural impacts were perceived negatively, particularly regarding festivals organized by external actors, most notably the Stihia festival. Many respondents expressed discomfort with Stihia, viewing its content as culturally or religiously inappropriate for the local context. Additional concerns included vandalism and the perceived loss of authenticity of certain buildings due to heavy renovation, which reflect patterns noted in earlier studies (AL HAJA 2011; ALAMINEH ET AL. 2023). These mixed reactions illustrate that while remote areas often welcome opportunities for cultural learning and exchange, they may also be sensitive to tourism initiatives that conflict with local cultural or religious values (SHTUDINER ET AL. 2018). As such, it remains crucial for policymakers and tourism developers to consider local perceptions to ensure socially sustainable tourism development (LI, PAN, HU 2021).

Environmental impacts formed the third major category of perceived effects. These impacts were predominantly positive, with respondents noting increased environmental awareness among both residents and local authorities. Improvements in waste management and heightened attention to local ecological conditions were frequently mentioned (GHADERI ET AL. 2022; YIN ET AL. 2024). Another noteworthy finding was the community's perception of increased tree planting, particularly Saksaul reforestation efforts, as a direct outcome of tourism development—an impact less commonly highlighted in previous studies, making it a unique contribution of this research. As a result, dark tourism in Muynak has contributed in part to environmental revitalization efforts, aligning with literature suggesting that tourism can sometimes stimulate conservation initiatives (YANKOVSKA, HANNAM 2014). Nevertheless, challenges remain. Similar to tourism destinations elsewhere, increased visitation—especially during festivals—has led to concerns about waste accumulation and littering, confirming trends observed in earlier research (WONG 2004; GARCÉS-ORDÓÑEZ ET AL. 2020; COMERIO ET AL. 2022). Given that Muynak is still in the early stages of

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tourism development, overall environmental perceptions remain relatively positive, which is often characteristic of emerging destinations (JOHNSON, SNEPENGER, AKIS 1994). These findings suggest that dark tourism, when managed responsibly, can contribute to environmental improvement in degraded landscapes.

In terms of perceived challenges, several key barriers to dark tourism development were identified. The most prominent challenge was the limited knowledge and skills in tourism management and entrepreneurship among local residents, compounded by language barriers. Even those who possessed ideas for tourism initiatives or had some foreign-language proficiency reported lacking the financial means to participate in tourism-related activities. Although financial support mechanisms exist through banks and government programmes, many residents were unaware of these opportunities or perceived them as inaccessible, indicating a gap in communication between local communities, authorities, and investors. Additional challenges included the scarcity of fresh water, insufficient tourism amenities, inadequate hospitality and hygiene standards, and limited promotion of the destination. These shortcomings mirror common constraints in many developing tourism regions (GÖSSLING 2006; WANG, YANG, CHEN, YANG, LI 2010; WOOSNAM 2012; MAMIRKULOVA, MI, ABBAS, MAHMOOD, MUBEEN, ZIAPOUR 2020; SETOKOE, RAMUKUMBA 2020; GOHORI, VANDER MERWE 2022; REINDRAWATI 2023; JAAFAR, EBKOZIEN, MOHAMAD, SALMAN 2023; TEGEGNE, ALEMAW, SENBETO 2025), highlighting the importance of addressing structural barriers to ensure that local communities can meaningfully benefit from dark tourism development in Muynak.

Quantitative findings also supported these perceptions. According to survey respondents, all themes identified during the formal interviews were confirmed, with economic and environmental perceptions—as well as perceived challenges—receiving comparatively higher mean scores, while socio-cultural perceptions were rated somewhat lower.

The findings from the third research question indicate that, despite the presence of challenges and only modest socio-cultural benefits, the local community in Muynak continues to support tourism development. Economic and environmental perceptions were found to positively influence support, with environmental perceptions emerging as the strongest predictor, consistent with previous studies (STYLIDIS ET AL. 2014; HAN ET AL. 2023; ŠERIĆ ET AL. 2024; PHUONG ET AL. 2025). In contrast, socio-cultural impacts were relatively small

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and did not significantly affect support, supporting the findings of (NGOWI, JANI 2018). Quantitative analysis also confirmed that perceived challenges, although acknowledged during the formal interviews, did not significantly influence support for tourism development, in line with (GURSOY ET AL. 2002; NUNKOO, SO 2016; SU ET AL. 2018; ŠEGOTA ET AL. 2024).

This pattern can be explained as follows. In newly established tourism destinations, initial interactions with tourists tend to produce tangible economic gains, which foster positive perceptions of tourism and encourage community support. Similarly, environmental improvements, such as enhanced waste management and awareness, can reinforce residents' support, even in the presence of ongoing challenges. In terms of socio-cultural impacts, many emerging tourism destinations, including Muynak, may initially experience limited cultural exchange between locals and tourists. Over time, as visitor numbers increase, this situation could change, although dark tourism sites are often less about cultural exchange and more about observing disasters and reflecting on historical events (JOHNSON ET AL. 1994; OKULICZ-KOZARYN, STRZELECKA 2017).

The observed pattern can also be interpreted through the lens of Doxey's Irritation Index, which outlines a progression of community attitudes toward tourism: euphoria, apathy, irritation, and antagonism (DOXEY 1975). Currently, Muynak appears to be in the euphoria stage, where tourism is still relatively new and residents are enthusiastic about the opportunities it brings. The introduction of dark tourism, centered on the Aral Sea disaster, has provided economic gains, environmental improvements, and a sense of novelty for the community. Even though socio-cultural benefits remain modest, and challenges such as infrastructure limitations and festival management persist, overall perceptions remain positive.

Looking ahead, if tourism continues to expand without careful planning and community engagement, community attitudes could shift toward apathy, irritation, or even antagonism. To sustain support and ensure the long-term viability of dark tourism, policymakers should prioritize enhancing economic opportunities, continuing environmental initiatives, and gradually addressing socio-cultural engagement and existing challenges. By doing so, the positive momentum observed in the euphoria stage can be maintained, allowing the community to benefit from tourism while minimizing potential conflicts in the future (GARCÍA-BUADES ET AL. 2022; BLACKIE ET AL. 2023; SOBCZAK, CHOMAĆ-PIERZECKA 2025).

5.2 Practical Implications

The findings highlight the importance of understanding local community perceptions in the development and management of tourism, particularly when a community transforms into a dark tourism destination. Tourism developers and policymakers need to recognize how residents perceive the shift from conventional tourism to tourism focused on environmental disaster and remembrance. Gaining insight into the community's perspective is crucial for ensuring their support, as local acceptance and cooperation are essential for the sustainable development of tourism policies and initiatives (MBAIWA 2005a; SHENG, TSUI 2010; STRICKLAND-MUNRO ET AL. 2010; KANG, LEE 2018; ESLAMI ET AL. 2019; HAN ET AL. 2023; WANG ET AL. 2023). By exploring how residents understand why tourists visit their town, authorities can design strategies that respect local experiences and priorities, avoiding policies that conflict with community interests.

For example, acknowledging that Muynak has become primarily a site of dark tourism allows policymakers to avoid promoting cultural tourism initiatives that may not align with the main motivations of visitors (LENNON, FOLEY 2000; LIGHT 2017). Understanding community perceptions also informs planning for infrastructure, events, and services that enhance visitor experience while maintaining harmony with local life (PANAYIDOU ET AL 2024). Since dark tourism primarily attracts niche travelers, it is essential for policymakers and businesses to recognize Muynak as a dark tourism site, enabling the development of targeted marketing, product and service design, pricing strategies, and promotional activities that reach the appropriate audience (PROOS, HATTINGH 2022; MARTINI, BUDA 2020).

Given that economic and environmental perceptions were found to influence local support for tourism, policymakers and businesses should focus on strengthening these aspects. Insufficient infrastructure and amenities currently limit tourists' length of stay and economic benefits for residents (KIM, BUTLER 2015). Therefore, continued investment in roads, accommodation, and other tourism facilities is essential (SISWANTO, DEWI, SUPRIYANTO 2021). Similarly, access to fresh water and environmental improvements remain critical, as these factors have been shown to positively shape community support (BECKEN 2014). Practical steps, including monitoring waste and ecological impacts during festivals, can help sustain the environmental benefits associated with tourism development (COLLINS, COOPER 2017).

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In terms of socio-cultural impacts, although present, they currently do not significantly influence community support for dark tourism (WRIGHT, SHARPLEY 2018). This may be because dark tourism is often more about witnessing environmental and historical events rather than cultural exchange (YANKOVSKA, HANNAM 2014; CHANG LIHUI 2017; LIGHT, IVANOVA 2022; ISAAC ET AL. 2019; MANGWANE ET AL. 2019; NHLABATHI, MAHARAJ 2020; MIN ET AL. 2021; ILIEV 2021; PANAYIDOU ET AL. 2024). Nonetheless, opportunities exist to enhance socio-cultural engagement by organizing events and festivals that reflect local traditions, food, and livelihoods. For example, fish-based culinary festivals have been well-received and can be further developed, while the Stihia festival—with its darker aesthetic—was less favored by residents. Policymakers should prioritize initiatives that resonate with the community and create meaningful interactions between tourists and locals (LI, WAN 2017; PANAYIDOU ET AL. 2024).

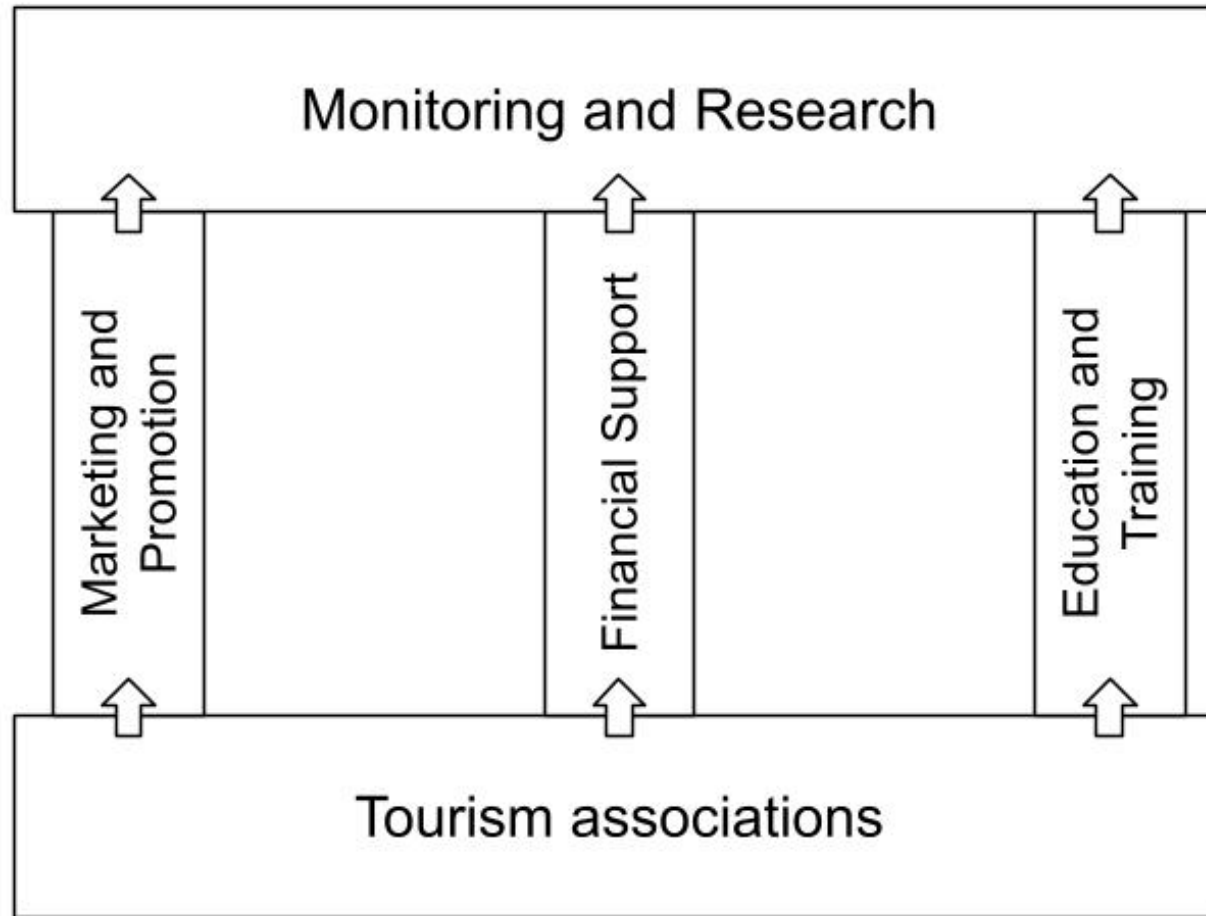
Based on the study findings, a bottom-up approach (Figure 25) is proposed to guide sustainable dark tourism development in Muynak:

Tourism Associations: Many residents are currently unaware of tourism development opportunities, making it necessary to establish a community committee or association through which local people can come together and learn about ongoing and planned dark tourism initiatives. Previous literature has emphasized that creating tourism-related associations is an essential step for engaging local communities and ensuring their support (LI, HUNTER 2015; BICHLER 2021). Establishing local tourism associations, led by community leaders, could function as hubs for information exchange, awareness-building, and participation, helping residents access government programs and funding opportunities.

Education and Training: The study identified a lack of knowledge and skills in tourism management, entrepreneurship, and foreign languages as major barriers. Therefore, once the tourism association is established, the next policy step should involve providing courses, seminars, and workshops aimed at strengthening residents' understanding of tourism concepts, service quality, and business management, as well as encouraging innovation and idea exchange (ANDERECK ET AL. 2005; HENNEMANN, LIEFNER 2010; AHN ET AL. 2024). These educational initiatives could be delivered by university lecturers through summer workshops funded by the government or NGOs. Successful tourism and hospitality entrepreneurs from established destinations such as Bukhara and Samarkand could be

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Figure 25. Bottom-up approach of dark tourism development



Source: Draft A. ALLABERGANOV 2025

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invited to share their experiences and case studies.

Financial Support: In addition to limited knowledge, insufficient financial resources were identified as a major obstacle preventing residents from participating in tourism development, resulting in some businesses being owned by non-locals. Government-provided funding, low-interest credit facilities, and financial management training can empower residents to establish and operate tourism enterprises, ensuring that economic benefits remain within the community (BORNHORST, RITCHIE, SHEEHAN 2010; ABDURAKHMANOVA, AHROROV 2025). Combining financial support with education may further encourage participation from women and youth, particularly in traditional crafts and service-related activities.

Marketing and Promotion: Awareness of Muynak as a dark tourism destination is currently limited, especially among domestic tourists. Therefore, alongside education and financial support, the marketing and promotion of dark tourism in Muynak should be strengthened. Domestic tourists should not be overlooked, as many remain unaware of Muynak's dark tourism attractions. Targeted marketing campaigns should highlight the ship cemetery, environmental history, and niche tourism experiences, which are essential elements for tourism development (PALMER, BEJOU 1995; BUHALIS 2000; GUO, YU, ZHAO 2024).

Monitoring and Research: After successfully implementing education, financial support, and marketing initiatives, policymakers should maintain continuous monitoring and research on dark tourism in Muynak. Regular assessments will help track tourism development, identify emerging challenges, and support adaptive policymaking (PARK, JAMIESON 2009). Research projects and feedback mechanisms will ensure that tourism development remains aligned with community needs and long-term sustainability goals (BAUM 1994; THOMAS, ORMEROD 2017; THIEL, WENNER 2018).

By implementing this bottom-up approach, policymakers and businesses can develop dark tourism in Muynak in a manner that is inclusive, community-friendly, economically beneficial, culturally sensitive, and environmentally sustainable.

5.3 Theoretical Contributions

Exploring and understanding the development of dark tourism, along with its perceived impacts and challenges by the local communities in Muynak and their support for it, provides several important theoretical contributions.

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First, while previous studies (EITZENBERGER, THIMM 2022; ALLABERGANOV, CATTERALL 2023; EITZENBERGER, THIMM 2024) have noted Uzbekistan's efforts to develop its tourism and hospitality industry, there remains a dearth of research on tourism development in lesser-known destinations such as Muynak. This study contributes to the tourism and hospitality literature by extending research on dark tourism to an underexplored and non-Western context, offering insights into tourism development in a previously overlooked location.

Second, there is a lack of studies applying Social Exchange Theory (SET) to the development of dark tourism sites, leaving a knowledge gap. To date, only one study (PANAYIDOU ET AL. 2024) has applied SET to dark tourism, and that was in a Western, developed-country context. This study therefore makes a novel theoretical contribution by applying and extending SET to examine dark tourism in a non-Western, developing-country context, namely Muynak, Uzbekistan.

Third, this study demonstrates that SET is a useful theoretical lens for understanding the development of dark tourism sites. By applying SET, it was possible to analyze how local communities perceive the costs and benefits of tourism and how these perceptions influence their support for tourism development.

Fourth, through the utilization of SET, the study identifies that dark tourism development can be transformative. Specifically, a tourism destination may evolve from a regular tourism site into a dark tourism site over an extended period, rather than as a response to a singular event. This highlights the dynamic and evolving nature of tourism development in the context of environmental and cultural change.

Finally, the study leverages SET to develop a dark tourism impact model and test it quantitatively. This empirical validation contributes to both the theoretical and methodological development of SET, demonstrating its applicability to dark tourism contexts in non-Western developing countries.

In summary, the study extends SET by applying it to dark tourism development in a previously underexplored setting, highlights the transformative nature of tourism destinations, and provides an empirically tested model of perceived impacts and community support. These contributions enrich the theoretical understanding of SET and broaden its applicability within tourism research.

5.4 Limitations and Future Research

This study has several limitations, which also provide opportunities for future research. First, in terms of geographic scope, the study focused solely on the town of Muynak, despite the presence of other areas affected by the Aral Sea disaster. While Muynak is a central site for dark tourism in the region, limiting the study to this location reduces the generalizability of the findings across Uzbekistan. Future research could explore dark tourism development and local community perceptions in other nearby locations, such as the capital of the Karakalpak Republic, Nukus. Comparative studies between multiple towns would allow researchers to identify regional similarities and differences in the development of dark tourism and its impacts on communities. Additionally, future studies could extend beyond Uzbekistan to include international dark tourism sites, such as Chernobyl, to enable broader comparative analyses of community perceptions and support for dark tourism across different cultural and socio-economic contexts.

Second, the study employed a cross-sectional design, capturing perceptions of dark tourism at a single point in time. While this approach provides valuable insights, it does not account for how perceptions might evolve over time. Longitudinal studies would allow researchers to examine changes in community attitudes, perceived impacts, and support for dark tourism, offering a more comprehensive understanding of the dynamics of tourism development in Muynak. Moreover, a longitudinal approach could provide stronger evidence for causal relationships between perceived impacts, challenges, and community support.

Third, this study focused primarily on the perceptions of local communities, as they are the foundational stakeholders in tourism development. However, future research could examine the perspectives of other key stakeholders, including dark tourists, investors, government agencies, and business owners. Understanding tourists' motivations, experiences, and perceptions of destination image could enrich the understanding of dark tourism dynamics. Similarly, analyzing the views of investors, policymakers, and business owners could illuminate opportunities and challenges from an operational and strategic perspective. Incorporating multiple stakeholder viewpoints would create a more holistic picture of dark tourism development and facilitate collaboration among communities, tourists, and industry actors.

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By addressing these limitations, future studies can enhance generalizability, uncover new insights about stakeholder interactions, and deepen the theoretical and practical understanding of dark tourism development in Muynak and beyond.

5.5 Conclusion

The purpose of this study was to explore and understand the development of dark tourism in the town of Muynak following the withdrawal of the Aral Lake, focusing on how local communities perceive its impacts and challenges, and whether they support further development. This study is particularly unique because it examines dark tourism in a non-Western, developing country context—a perspective that remains underexplored in the existing literature. Moreover, it represents the first study on dark tourism in Central Asia, filling an important regional research gap.

By applying Social Exchange Theory (SET), the study identified that dark tourism development can be transformative, even in an already existing tourism site such as Muynak. This transformation illustrates how a destination can shift from conventional tourism to dark tourism over time, driven by environmental disasters and the evolving interests of visitors.

The study also found that the impacts of dark tourism in Muynak reflect similar patterns to other forms of tourism development, encompassing economic, socio-cultural, and environmental dimensions. These findings provide valuable guidance for policymakers and businesses, enabling them to formulate strategies and policies that support sustainable tourism development, empower local communities, and minimize conflicts between residents and tourism initiatives.

Overall, the study demonstrates that disaster-affected destinations can leverage dark tourism to provide economic benefits to local communities, foster environmental awareness, and contribute to ecological revitalization through activities such as tree planting. While socio-cultural exchange may be limited in dark tourism due to its focus on education, environmental reflection, and niche visitation, the development of dark tourism in Muynak highlights its potential to deliver tangible social, economic, and environmental benefits when planned and managed responsibly.

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Appendices

Qualitative information sheet

PARTICIPATION INFORMATION SHEET

Subject: Dark Tourism development in the town of Muynak

Researcher: Azizbek Allaberganov Contact: aallaberganov3@gmail.com

You are invited to take part in research into how dark tourism developed in the town of Muynak and its impacts on the local community. Your insights will be of great value in informing this understanding.

This research is carried out under the research ethics guidelines of Justus-Liebig-Universität Giessen.

- Your participation in this research and willingness to be interviewed is entirely voluntary;
- You have the right to withdraw at any time;
- You have the right to ask for any data or obtained regarding yourself and your participation in this project to be withdrawn;
- You have the right to require that any personal data is withdrawn or anonymised;
- You do not have to answer particular questions if you do not wish to do so;
- Your consent will be obtained before data collection takes place;
- Data obtained through questionnaire will only be used with your consent. It will also only be deposited (or destroyed) with your consent, and you will retain the copyright on this;
- All computer files containing such information will be encrypted and password protected. The researcher will keep files in a secure place and comply with Data Protection laws.

Qualitative consent form

INTERVIEW CONSENT FORM

Title of Study: Dark Tourism development in the town of Muynak

Lead researcher: Azizbek Allaberganov
Contact details: aallaberganov3@gmail.com

I have been given the Participation Information Sheet and had its contents explained to me	Yes <input type="checkbox"/>	No <input type="checkbox"/>
I have had an opportunity to ask any questions and I am satisfied with the answers given	Yes <input type="checkbox"/>	No <input type="checkbox"/>
I understand that I can withdraw from participation at any time	Yes <input type="checkbox"/>	No <input type="checkbox"/>
I understand that my consent is required for the use, retention or destruction of any resulting data and that I retain copyright of this material	Yes <input type="checkbox"/>	No <input type="checkbox"/>
I wish to receive a copy of this Consent Form	Yes <input type="checkbox"/>	No <input type="checkbox"/>
I confirm that I am willing to be a participant in this research	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Participant's Name:

Signature:

Date:

I confirm that I have provided a copy of the Participant Information Sheet to the participant and fully explained its contents. I have given the participant an opportunity to ask questions about it and the research process, which have been answered.

Researcher's Name:

Signature:

Date:

Qualitative interview questions

Interview Guide (Social Exchange Theory in Aral Lake)

This is an academic exercise of a research team from the Justus Liebig University in Giessen, investigating the concept of Social Exchange Theory in Aral Lake area.

Section A: Introduction

1. How old are you?
2. What languages do you speak?
3. Are you from Muynak originally?
4. How long have you lived in Muynak?
5. What is your activity and/or paid job in the community?
6. Do you belong to any cooperatives or associations?

Section B: Tourism development

1. When did tourists start arriving in your area?
2. Were there tourists before the Aral Sea disaster?
3. Why do you think tourists visit Muynak and Aral Sea area?
4. Do tourists visit your community specific times of the year?
5. Can you please draw on a map, where tourists go in your area?
6. Are you involved with tourism? If yes, how and if no, why not?
7. Who else is involved in tourism in Muynak and how?

Section C: Initiation of exchange

1. What are the main motives/reasons for you to start an interaction with the tourists?

Section D: Exchange formation

1. What conditions or events exist in your community that creates an opportunity to initiate an interaction with the tourists?
2. In your view, are there negative barriers that exist to prevent interaction with tourists?

Section E: Post exchange evaluation consequences

1. What is your view in terms of negative and positive consequences of having tourists in your community (Mahalla)?
 - A. Local economy
 - Employment
 - Entrepreneurship
 - Infrastructure
 - B. Socio-culture
 - Health and happiness of the people
 - Culture and pride
 - C. Environment
 - Ecology and environmental awareness
 - Promotion of conservation
 - Waste management
 - D. Other sectors

Qualitative information sheet in Uzbek Latin

ISHTIROK ETISH BO‘YICHA MA’LUMOT VARAQASI

Mavzu: Muynak shahrida qorong‘u (dark) turizm rivojlanishi

Tadqiqotchi: Azizbek Allaberganov

Aloqa: aallaberganov3@gmail.com

Sizni Muynak shahrida qorong‘u turizm qanday rivojlangani va uning mahalliy hamjamiyatga ta’siri bo‘yicha tadqiqotda ishtirok etishga taklif qilamiz. Sizning fikrlaringiz ushbu masalani tushunishda juda muhim ahamiyatga ega bo‘ladi.

Ushbu tadqiqot Justus-Liebig-Universität Giessen universitetining tadqiqot etikasi qoidalari asosida amalga oshiriladi.

- Ushbu tadqiqotda ishtirok etishingiz va suhbatda qatnashishingiz to‘liq ixtiyoriydir;
- Istagan vaqtingizda tadqiqotdan chiqib ketish huquqiga egasiz;
- O‘zingizga oid ma’lumotlar yoki ushbu loyiha doirasida olingan har qanday ma’lumotni o‘chirib tashlashni talab qilish huquqiga egasiz;
- Shaxsiy ma’lumotlaringizni o‘chirib tashlash yoki anonimlashtirishni talab qilish huquqiga egasiz;
- Istamasangiz, ayrim savollarga javob bermaslik huquqiga egasiz;
- Ma’lumot yig‘ishdan oldin sizning roziligingiz olinadi;
- So‘rovnoma orqali olingan ma’lumotlar faqat sizning roziligingiz bilan ishlatiladi. Ular faqat sizning roziligingiz bilan saqlanadi (yoki yo‘q qilinadi) va mualliflik huquqi sizda qoladi;
- Ushbu turdagi ma’lumotlarni o‘z ichiga olgan barcha kompyuter fayllari shifrlanadi va parol bilan himoyalanaadi. Tadqiqotchi fayllarni xavfsiz joyda saqlaydi va Ma’lumotlarni Himoya Qonunlariga rioya qiladi.

Qualitative consent form in Uzbek Latin

SUHBATDA ISHTIROK ETISH UCHUN ROZILIK SHAKLI

Tadqiqot nomi: Muynak shahrida qorong‘u (dark) turizm rivojlanishi

Tadqiqot rahbari: Azizbek Allaberganov

Aloqa ma’lumotlari: aallaberganov3@gmail.com

Menga Ishtirok Etish Bo‘yicha Ma’lumot Varaqasi berildi va uning mazmuni menga tushuntirildi.	Ha <input type="checkbox"/>	Yo‘q <input type="checkbox"/>
Menga savol berish imkoni berildi va berilgan javoblar meni qoniqtirdi.	Ha <input type="checkbox"/>	Yo‘q <input type="checkbox"/>
Ishtirokdan istagan vaqtda chiqib ketish huquqim borligini tushunaman.	Ha <input type="checkbox"/>	Yo‘q <input type="checkbox"/>
Olingan ma’lumotlarni qo‘llash, saqlash yoki yo‘q qilish uchun mening roziligim talab etilishini va ushbu materialga mualliflik huquqi menga tegishli ekanini tushunaman.	Ha <input type="checkbox"/>	Yo‘q <input type="checkbox"/>
Ushbu Rozilik Shaklining nusxasini olishni istayman.	Ha <input type="checkbox"/>	Yo‘q <input type="checkbox"/>
Ushbu tadqiqotda ishtirok etishga tayyorligimni tasdiqlayman.	Ha <input type="checkbox"/>	Yo‘q <input type="checkbox"/>

Ishtirokchining ismi:

Imzo:

Sana:

Men Ishtirok Etish Bo‘yicha Ma’lumot Varaqasining nusxasini ishtirokchiga taqdim etganimni va uning mazmunini to‘liq tushuntirib berganimni tasdiqlayman. Shuningdek, ishtirokchiga undagi ma’lumotlar va tadqiqot jarayoni bo‘yicha savol berish imkoniyatini berdim va barcha savollarga javob berildi.

Tadqiqotchining ismi:

Imzo:

Sana:

Qualitative information sheet in Uzbek Cyrillic

ИШТИРОК ЭТИШ БЎЙИЧА МАЪЛУМОТ ВАРАҚАСИ

Мавзу: Муйнак шаҳрида қоронғу (dark) туризм ривожланиши

Тадқиқотчи: Азизбек Аллаберганов

Алоқа: aallaberganov3@gmail.com

Сизни Муйнак шаҳрида қоронғу туризм қандай ривожлангани ва унинг маҳаллий жамоага таъсири бўйича тадқиқотда иштирок этишга таклиф қиламиз. Сизнинг фикрларингиз ушбу масалани тушунишда жуда муҳим аҳамиятга эга бўлади.

Ушбу тадқиқот Justus-Liebig-Universität Giessen университетининг тадқиқот этикаси қоидалари асосида амалга оширилади.

- Ушбу тадқиқотда иштирок этишингиз ва суҳбатда қатнашингиз тўлиқ ихтиёрийдир;
- Истаган вақтингизда тадқиқотдан чиқиб кетиш ҳуқуқига эгасиз;
- Ўзингизга оид маълумотлар ёки ушбу лойиҳа доирасида олинган ҳар қандай маълумотни ўчириб ташлашни талаб қилиш ҳуқуқига эгасиз;
- Шахсий маълумотларингиз ўчирилиши ёки анонимлаштирилишини талаб қилиш ҳуқуқига эгасиз;
- Истамасангиз, айрим саволларга жавоб бермаслик ҳуқуқига эгасиз;
- Маълумот йиғишдан аввал сизнинг розилигингиз олинади;
- Сўровнома орқали олинган маълумотлар фақат сизнинг розилигингиз билан ишлатилади. Улар фақат сизнинг розилигингиз билан сақланади (ёки йўқ қилинади) ва муаллифлик ҳуқуқи сизда қолади;
- Ушбу турдаги маълумотларни ўз ичига олган барча компьютер файллари шифрланади ва парол билан ҳимояланади. Тадқиқотчи файлларни хавфсиз жойда сақлайди ва Маълумотларни ҳимоя қилиш қонунларига риоя қилади.

Qualitative consent form in Uzbek Cyrillic

СУХБАТДА ИШТИРОК ЭТИШ УЧУН РОЗИЛИК ШАКЛИ

Тадқиқот номи: Муйнак шаҳрида қоронғу (dark) туризм ривожланиши

Тадқиқот раҳбари: Азизбек Аллаберганов

Алоқа маълумотлари: aallaberganov3@gmail.com

Менга Иштирок Этиш Бўйича Маълумот Варақаси берилди ва унинг мазмуни менга тушунтирилди	Ҳа <input type="checkbox"/>	Йўқ <input type="checkbox"/>
Менга савол бериш имконияти берилди ва берилган жавоблар мени қониқтирди	Ҳа <input type="checkbox"/>	Йўқ <input type="checkbox"/>
Иштирокдан истаган вақтда чиқиб кетиш ҳуқуқим борлигини тушунаман	Ҳа <input type="checkbox"/>	Йўқ <input type="checkbox"/>
Олинган маълумотларни қўллаш, сақлаш ёки йўқ қилиш учун менинг розилигим талаб этилишини ва ушбу материалга муаллифлик ҳуқуқи менга тегишли эканини тушунаман	Ҳа <input type="checkbox"/>	Йўқ <input type="checkbox"/>
Ушбу Розилик Шаклининг нусхасини олишни истайман	Ҳа <input type="checkbox"/>	Йўқ <input type="checkbox"/>
Ушбу тадқиқотда иштирок этишга тайёрлигимни тасдиқлайман	Ҳа <input type="checkbox"/>	Йўқ <input type="checkbox"/>

Иштирокчининг исми:

Имзо:

Сана:

Мен Иштирок Этиш Бўйича Маълумот Варақасининг нусхасини иштирокчига тақдим этганимни ва унинг мазмунини тўлиқ тушунтириб берганимни тасдиқлайман. Шунингдек, иштирокчига ундаги маълумотлар ва тадқиқот жараёни бўйича савол бериш имкониятини бердим ва барча саволларга жавоб берилди.

Тадқиқотчининг исми:

Имзо:

Сана:

Qualitative interview questions in Uzbek

Suhbat Qo'llanmasi (Orol dengizi hududida Ijtimoiy Ayirboshlash Nazariyasi)

Bu – Giessen shahridagi Justus Liebig Universiteti tadqiqot guruhi tomonidan Orol dengizi hududida Ijtimoiy Ayirboshlash Nazariyasi konsepsiyasini o'rganishga qaratilgan ilmiy mashqdir.

A-bo'lim: Kirish

1. Siz nechanchi yilsiz?
2. Qaysi tillarda gaplashasiz?
3. Asl kelib chiqishingiz Mo'ynokdanmi?
4. Mo'ynokda qancha vaqt yashagansiz?
5. Jamoatda qanday faoliyat yoki haq to'lanadigan ish bilan shug'ullanasiz?
6. Siz biror kooperativ yoki uyushmaga a'zo bo'lganmisiz?

B-bo'lim: Turizm rivojlanishi

1. Turistlar sizning hududingizga qachondan beri kela boshlagan?
2. Orol dengizi falokatidan oldin ham turistlar bo'lganmi?
3. Sizningcha, turistlar nima uchun Mo'ynok va Orol dengizi hududiga kelishadi?
4. Turistlar yilning ma'lum fasllarida jamoangizga tashrif buyuradimi?
5. Iltimos, xaritada turistlar hududingizda qaysi joylarga borishini ko'rsatib bera olasizmi?
6. Siz turizm bilan shug'ullanasizmi? Ha bo'lsa — qanday, yo'q bo'lsa — nega?
7. Mo'ynokda yana kimlar turizm bilan shug'ullanadi va qanday tarzda?

C-bo'lim: Ayirboshlashning boshlanishi

1. Turistlar bilan muloqotni boshlashingizga asosiy turtki yoki sabablar nimalardan iborat?

D-bo'lim: Ayirboshlash shakllanishi

1. Jamoangizda turistlar bilan muloqot boshlash imkonini yaratuvchi qanday sharoitlar yoki voqealar mavjud?
2. Sizningcha, turistlar bilan muloqotni cheklovchi salbiy to'siqlar bormi?

E-bo'lim: Ayirboshlashdan keyingi baholash va oqibatlar

1. Jamoangizda (mahallangizda) turistlarning bo'lishi natijasidagi ijobiy va salbiy oqibatlar haqida fikringiz qanday?

A. Mahalliy iqtisodiyot

- Bandlik
- Tadbirkorlik
- Infratuzilma

B. Ijtimoiy-madaniyat

- Aholining salomatligi va baxtiyorligi
- Madaniyat va faxr

C. Atrof-muhit

- Ekologiya va ekologik xabardorlik
- Tabiatni muhofaza qilishni targ'ib qilish
- Chiqindilarni boshqarish

D. Boshqa sohalar

Qualitative information sheet in Karakalpak Latin

QATNASÍW BOYÍNSHA MAĞLÍWMAT QAĞAZÍ

Teması: Moynaq qalasında «qara turizm» (dark tourism) rawajlanıwı

Izertlewshi: Azizbek Allaberganov

Baylanıs: aallaberganov3@gmail.com

Izertlew etikasını kórip shıǵıw komiteti: Justus Liebig atındaǵı Gissen universiteti

Siz Moynaq qalasında «qara turizm» qalay rawajlanǵanlıǵı hám onıń jergilikli jámiyetshilikke tásiiri boyınsha ótkerilip atırǵan izertlewde qatnasıwǵa mirát etilesiz. Siziń pikirlerińiz bul processti tereńirek túsiniwge úlken járdem beredi.

Bul izertlew **Justus Liebig atındaǵı Gissen universiteti** tárepinen belgilengen izertlew etikasına tiyisli qaǵıydalarǵa muwapıq ámelge asırıladı.

- Izertlew hám sáwbetlesiwde qatnasıw tolıq iqtıyarlı;
- Siz qálegen waqıtta izertlewden shıǵıw huqıqına iyesiz;
- Siz ózińiz haqqındaǵı barlıq maǵlıwmatlardı yaki qatnasıwıńızǵa baylanıslı maǵlıwmatlardı óshirip taslawdı soraw huqıqına iyesiz;
- Siz barlıq jeke maǵlıwmatlarıńızdı alıp taslaw yaki anonimlestiriwdi talap etiw huqıqına iyesiz;
- Eger qálemeseńiz, ayırım sorawlarga juwap bermewińiz múmkin;
- Maǵlıwmatlar toplanıwınan aldın sizden razılıq alınadı;
- Sorawnama arqalı toplanǵan maǵlıwmatlar tek siziń razılıǵıńız benen paydalanıladı. Maǵlıwmatlar siziń razılıǵıńız benen saqlanadı yamasa joq etiledi, sonday-aq, siz avtorlıq huqıqın saqlap qalasız;
- Barlıq kompyuter faylları shifrlanadı hám jeke parol menen qorǵaladı. Izertlewshi fayllardı qáwipsiz jerde saqlaydı hám maǵlıwmatlardı qorǵaw haqqındaǵı nızamlarǵa ámel etedi.

Qualitative consent form in Karakalpak Latin

SÁWBET USHÍN KELISIM FORMASÍ

Teması: Moynaq qalasında «qara turizm» (dark tourism) rawajlanıwı

Bas izertlewshi: Azizbek Allaberganov

Baylanıs maǵlıwmatları: aallaberganov3@gmail.com

Men qatnasıw boyınsha maǵlıwmat qaǵazın aldım hám onıń mazmunı maǵan túsindirildi.	Awa <input type="checkbox"/>	Yaq <input type="checkbox"/>
Men barlıq sorawlarımı beriw múmkinshiligine iye boldım hám maǵan berilgen juwaplardan qanaatlandım.	Awa <input type="checkbox"/>	Yaq <input type="checkbox"/>
Men qálegen waqıtta izertlewge qatnasıwdan bas tartıwım múmkin ekenligin túsindim.	Awa <input type="checkbox"/>	Yaq <input type="checkbox"/>
Men jıynalǵan maǵlıwmatlardan paydalanıw, olardı saqlaw yamasa joq etiw ushın meniń kelisimim kerek ekenligin hám usı material ústinen avtorlıq huqıqımdı saqlap qalatuǵımdı túsindim.	Awa <input type="checkbox"/>	Yaq <input type="checkbox"/>
Men usı Kelisim formasınıń kóshirmesin alıwdı qáleymen.	Awa <input type="checkbox"/>	Yaq <input type="checkbox"/>
Men usı izertlewge qatnasıwǵa kelisim beremen.	Awa <input type="checkbox"/>	Yaq <input type="checkbox"/>

Qatnasıwshınıń atı:

Qolı:

Sáne:

Men qatnasıwshıǵa Qatnasıw boyınsha maǵlıwmat qaǵazın usındım hám onıń mazmunın tolıq túsindirip berdim.

Qatnasıwshıǵa usı hújjet hám izertlew procesi boyınsha sorawlar beriw imkaniyatı berildi hám barlıq sorawlarǵa juwap berildi.

Izertlewshiniń atı:

Qolı:

Sáne:

Qualitative information sheet in Karakalpak Cyrillic

ҚАТНАСЫҰ БОЙЫНША МАҒЛЫҰМАТ ҚАҒАЗЫ

Темасы: Мойнақ қаласында «қара туризм» (dark tourism) раўажланыўы

Изертлеўши: Азизбек Аллаберганов

Байланыс: aallaberganov3@gmail.com

Изертлеў этикасын көрип шығыў комитети: Justus Liebig атындағы Gissen университети

Сиз Мойнақ қаласында «қара туризм» қалай раўажланғанлығы хәм оның жергиликли жәмийетшиликке тәсири бойынша өткерилип атырған изертлеўде қатнасыўға мирәт етилесиз. Сизиң пикирлериңиз бул процессти тереңирек түсиниўге үлкен жәрдем бередиди.

Бул изертлеў **Justus Liebig атындағы Gissen университети** тәрәпинен белгиленген изертлеў этикасына тийисли қағыйдаларға муўапық әмелге асырылады.

- Изертлеў хәм сәўбетлесийде қатнасыў толық ықтыярлы;
- Сиз қәлеген ўақытта изертлеўден шығыў хуқықына ийесиз;
- Сиз өзиниң хәққындағы барлық мағлыўматларды яки қатнасыўыңызға байланыслы мағлыўматларды өширип таслаўды сораў хуқықына ийесиз;
- Сиз барлық жеке мағлыўматларыңызды алып таслаў яки анонимлестириўди талап етиў хуқықына ийесиз;
- Егер қәлемесеңиз, айырым сораўларға жуўап бермеўиңиз мүмкин;
- Мағлыўматлар топланыўынан алдын сизден разылық алынады;
- Сораўнама арқалы топланған мағлыўматлар тек сизиң разылығыңыз бенен пайдаланылады. Мағлыўматлар сизиң разылығыңыз бенен сақланады ямаса жоқ етиледиди, сондай-ақ, сиз авторлық хуқықын сақлап қаласыз;
- Барлық компьютер файллары шифрланады хәм жеке пароль менен қорғалады. Изертлеўши файлларды қәўипсиз жерде сақлайды хәм мағлыўматларды қорғаў хәққындағы нызамларға әмел етеди.

Qualitative consent form in Karakalpak Cyrillic

СӘЎБЕТ УШЫН КЕЛИСИМ ФОРМАСЫ

Темасы: Мойнақ қаласында «қара туризм» (dark tourism) раўажланыўы

Бас изертлеўши: Азизбек Аллаберганов

Байланыс мағлыўматлары: aallaberganov3@gmail.com

Мен қатнасыў бойынша мағлыўмат қағазын алдым хәм оның мазмуны маған түсиндирилди.	Аўа <input type="checkbox"/>	Яқ <input type="checkbox"/>
Мен барлық сораўларымды бериў мүмкиншилигине ийе болдым хәм маған берилген жуўашлардан қанаатландым.	Аўа <input type="checkbox"/>	Яқ <input type="checkbox"/>
Мен қәлеген ўақытта изертлеўге қатнасыўдан бас тартыўым мүмкин екенлигин түсиндим.	Аўа <input type="checkbox"/>	Яқ <input type="checkbox"/>
Мен жыйналған мағлыўматлардан пайдаланыў, оларды сақлаў ямаса жоқ етиў ушын мениң келисимим керек екенлигин хәм усы материал үстинен авторлық хуқықымды сақлап қалатуғынымды түсиндим.	Аўа <input type="checkbox"/>	Яқ <input type="checkbox"/>
Мен усы Келисим формасының көширмесин алыўды қәлеймен.	Аўа <input type="checkbox"/>	Яқ <input type="checkbox"/>
Мен усы изертлеўге қатнасыўға келисим бермен.	Аўа <input type="checkbox"/>	Яқ <input type="checkbox"/>

Қатнасыўшының аты:

Қолы:

Сәне:

Мен қатнасыўшыға Қатнасыў бойынша мағлыўмат қағазын усындым хәм оның мазмунын толық түсиндирип бердим.

Қатнасыўшыға усы хұжет хәм изертлеў процесин бойынша сораўлар бериў имканияты берилди хәм барлық сораўларға жуўап берилди.

Изертлеўшиниң аты:

Қолы:

Сәне:

Quantitative information sheet

Survey Instructions

Dear Participant,

You are invited to take part in a research survey as part of a PhD study focused on the development of tourism in the town of **Muynak**. The purpose of this survey is to gather your **opinions, perceptions, and suggestions** regarding current and potential tourism development in Muynak. Your input is invaluable and will contribute to a better understanding of how tourism affects the local community, economy, environment, and cultural heritage.

Participation is completely voluntary, and there are no right or wrong answers. Please answer each question as honestly and thoughtfully as possible based on your own experiences and perspectives.

Your responses will remain entirely anonymous and confidential. No identifying information will be collected, and all data will be used strictly for academic research purposes.

This survey should take approximately **10–15 minutes** to complete. You may choose to skip any question you are not comfortable answering and you may withdraw from the survey at any point.

If you have any questions about this research or the survey itself, please feel free to contact the researcher using the contact information provided at the end of the questionnaire.

Thank you very much for your time and contribution to this important study.

Sincerely,

Azizbek Allaberganov

PhD Candidate, Institute of Geography/JLU



Quantitative survey

Instructions for completing Section A

Please read each of the following statements carefully. For each statement, indicate whether you agree or do not agree by selecting Yes or No:

Select **Yes** if you agree with the statement.

Select **No** if you do not agree with the statement.

Before the drying of the Aral Lake visitors came to Muynak to:		
To swim in the Aral Lake	Yes	No
To stay in the resort near Aral Lake	Yes	No
To learn about the culture of Muynak	Yes	No
To learn and research about Aral Lake before it dried up	Yes	No
After the drying of the Aral Lake visitors came to Muynak to:		
To see the cemetery of ships and museum	Yes	No
To witness the disaster of Aral Lake	Yes	No
To see and take part in festivals	Yes	No
To learn and research about Aral Lake after it dried up	Yes	No
To learn about the culture of Muynak	Yes	No

Instruction for completing Section B

Please read each statement carefully and indicate how much you agree or disagree by selecting the option that best reflects your opinion on impact of tourism development in the town of Muynak and challenges you think is present that is hindering its further development and whether you support for its further development or not. Use the following scale:

1 – Strongly Disagree

2 – Disagree

3 – Neutral

4 – Agree

5 – Strongly Agree

Impact of tourism development in the town of Muynak					
Tourism improved infrastructure in Muynak such as the main road and buildings	1	2	3	4	5
Museums and cemetery of ships were built because of tourism in Muynak	1	2	3	4	5
Tourism development created jobs in tourism in the town of Muynak	1	2	3	4	5
There is an increased earning opportunities due to tourism development in Muynak	1	2	3	4	5
Our standard of living has increased due to tourism development in Muynak	1	2	3	4	5
Because of tourism, there is increased business ventures in the town of Muynak	1	2	3	4	5
It has become expensive to live in Muynak due to tourism development	1	2	3	4	5
Only limited amount of people benefits financially from tourism in Muynak	1	2	3	4	5
There is a limited number of jobs in tourism in Muynak still	1	2	3	4	5
Majority of business owners and specialists are not from Muynak due to tourism	1	2	3	4	5
We receive a lot of attention and support from government because of tourism	1	2	3	4	5
As a result of tourism, locals can learn about other cultures in the town of Muynak	1	2	3	4	5
Due to interaction with tourists, people learn different languages in Muynak	1	2	3	4	5
We are proud of our culture due to tourism development in Muynak	1	2	3	4	5
Tourism led to increased knowledge in business management in Muynak	1	2	3	4	5
Some festivals in Muynak are inappropriate to our customs and religious beliefs	1	2	3	4	5
We are not proud of our culture due to tourism development in Muynak	1	2	3	4	5
Because of tourism, some ships have seen vandalism such as writings and graffiti	1	2	3	4	5
Infrastructure improvement due to tourism led to some areas losing authenticity	1	2	3	4	5

Tourism led to increased environmental awareness among the locals in Muynak	1	2	3	4	5
We learn how to manage waste in our communities due to tourism in Muynak	1	2	3	4	5
Due to tourism, there has been increased tree planting in Muynak	1	2	3	4	5
There is an increase of waste and garbage in Muynak because of tourism	1	2	3	4	5
Traffic jams have increased in Muynak due to development of tourism	1	2	3	4	5
We do not learn about waster management from tourists in Muynak	1	2	3	4	5
Constructions due to of tourism has destroy the natural landscape of Muynak	1	2	3	4	5
Challenges of tourism development in Muynak					
Language barrier is an issue in interacting and benefiting from tourism in Muynak	1	2	3	4	5
Lack of water in Muynak is a challenge to develop tourism in Muynak	1	2	3	4	5
People lack knowledge and expertise to engage in tourism in Muynak	1	2	3	4	5
I am not aware of any funds of tourism associations in Muynak	1	2	3	4	5
It is not clear what the government is doing in tourism development in Muynak	1	2	3	4	5
Financial barriers are significant for the locals in Muynak to engage in tourism	1	2	3	4	5
Tourism in Muynak must be extensively promoted to international communities	1	2	3	4	5
Hygiene and hospitality of our community must be improved to develop tourism	1	2	3	4	5
More tourism amenities and attractions must be constructed in Muynak	1	2	3	4	5
Please indicate if you support tourism development in Muynak					
I support the development of tourism in the town of Muynak	1	2	3	4	5
I would like to see more tourists and tourism development in the town of Muynak	1	2	3	4	5
Locals in the town of Muynak should support further development of tourism	1	2	3	4	5

Instruction for completing Section C

Please answer the following questions about yourself. This information helps us better understand the diversity of our participants. Your responses will be kept confidential and used only for research/statistical purposes.

1. Gender
 - a. Male
 - b. Female
2. Age
 - a. 18-25
 - b. 26-35
 - c. 36-45
 - d. 46-55
 - e. 56-60
 - f. Over 60
3. Marital Status
 - a. Single
 - b. Married
 - c. Divorced
 - d. Widowed
4. Occupation
 - a. Tourism related
 - b. Non-tourism related
 - c. Retired
 - d. Unemployed/disabled
5. Length of residency
 - a. Less than 1 year
 - b. 1-5 years
 - c. 6-10 years
 - d. 11-15 years
 - e. 16-20 years
 - f. Over 20 years
6. Education
 - a. No Schooling
 - b. High school
 - c. College
 - d. Undergraduate
 - e. Graduate
 - f. PhD
7. Income per month
 - a. Less than 3,000,000 sums
 - b. 3,000,000 – 5,000,000 sums
 - c. 5,000,000 – 10,000,000 sums
 - d. More than 10,000,000 sums

Quantitative information sheet in Uzbek Latin

So‘rovnoma Yo‘riqnomasi

Hurmatli ishtirokchi,

Sizni Muynak shahrida turizm rivojlanishiga bag‘ishlangan PhD tadqiqoti doirasida o‘tkazilayotgan so‘rovnomada ishtirok etishga taklif qilamiz. Ushbu so‘rovnomaning maqsadi — Muynakdagi hozirgi va istiqboldagi turizm rivojlanishi bo‘yicha fikrlaringiz, qarashlaringiz va takliflaringizni yig‘ishdir. Sizing fikrlaringiz juda muhim bo‘lib, turizmning mahalliy hamjamiyat, iqtisodiyot, atrof-muhit va madaniy merosga ta‘sirini chuqurroq tushunishga yordam beradi.

Ishtirok etish butunlay ixtiyoriy bo‘lib, to‘g‘ri yoki noto‘g‘ri javoblar mavjud emas. Savollarga iloji boricha halol va o‘ylab javob berishingizni so‘raymiz; javoblaringiz o‘z shaxsiy tajribangiz va qarashlaringizga asoslangan bo‘lsin.

Sizing javoblaringiz to‘liq anonim va maxfiy bo‘lib qoladi. Shaxsni aniqlovchi hech qanday ma‘lumot yig‘ilmaydi, barcha ma‘lumotlar faqat ilmiy-ma‘rifiy maqsadlarda foydalaniladi.

So‘rovnomani to‘ldirish taxminan 10–15 daqiqa vaqt oladi. O‘zingizni noqulay his qilsangiz, istalgan savolni javobsiz qoldirishingiz yoki so‘rovnomani istalgan vaqtda tark etishingiz mumkin.

Agar ushbu tadqiqot yoki so‘rovnoma haqida savollaringiz bo‘lsa, so‘rovnoma oxirida ko‘rsatilgan aloqa ma‘lumotlari orqali tadqiqotchi bilan bog‘lanishingiz mumkin.

Ushbu muhim tadqiqotga vaqt ajratganingiz va qo‘shgan hissangiz uchun katta rahmat.

Hurmat bilan,

Azizbek Allaberganov

PhD tadqiqotchisi, Geografiya instituti / JLU



Quantitative survey in Uzbek Latin

A bo‘limini to‘ldirish uchun ko‘rsatma

Iltimos, quyidagi gaplarni yaxshilab o‘qing. Har bir gapga rozimisiz yoki yo‘qmi, “Ha” yoki “Yo‘q” ni tanlang:

Agar rozi bo‘lsangiz — “Ha” ni belgilang.

Agar rozi bo‘lmasangiz — “Yo‘q” ni belgilang.

Aral dengizi qurishidan oldin odamlar Muynakka nima uchun kelishardi?		
Aral dengizida cho‘milish uchun	Ha	Yo‘q
Aral dengizida yonidagi dam olish maskanida qolish uchun	Ha	Yo‘q
Muynak halqining madaniyatini bilish uchun	Ha	Yo‘q
Qurimagan Aral dengizi haqida o‘rganish va izlanish uchun	Ha	Yo‘q
Aral dengizi qurigandan keyin, odamlar Muynakka nima uchun kelishadi?		
Kemalar qabristonini va muzeyni ko‘rish uchun	Ha	Yo‘q
Aral dengizining quriganligini ko‘rish uchun	Ha	Yo‘q
Bayram va festivallarda qatnashish uchun	Ha	Yo‘q
Qurigan Aral dengizi haqida o‘rganish va izlanish uchun	Ha	Yo‘q
Muynak halqining madaniyatini bilish uchun	Ha	Yo‘q

B bo‘limini to‘ldirish uchun ko‘rsatma

Iltimos, har bir gapni diqqat bilan o‘qing va Muynak shahrida turizm rivojlanishining ta’siri, muammolari va uni qo‘llab-quvvatlash darajangizni belgilang. Quyidagi o‘lchovdan foydalaning:

- 1 – Umuman qoshilmayman
- 2 – Qoshilmayman
- 3 – Aniq fikrim yo‘q
- 4 – Qoshilaman
- 5 – To‘liq qoshilaman

Muynak shahrida turizm rivojlanishining ta’siri					
Turizm sababli Muynakda yo‘llar va binolar yaxshilandi	1	2	3	4	5
Turizm tufayli Muynakda muzeylar va kemalar qabristoni qurildi	1	2	3	4	5
Turizm rivojlanishi Muynakda turizm sohasida ish o‘rinlari yaratdi	1	2	3	4	5
Turizm tufayli Muynakda daromad topish imkoniyatlari oshdi	1	2	3	4	5
Turizm rivojlangani sababli Mo‘ynoqda yashash darajamiz yaxshilandi	1	2	3	4	5
Turizm tufayli Muynakda bizneslar ko‘paydi	1	2	3	4	5
Turizm rivojlangani uchun Mo‘ynoqda yashash qimmatlashib ketdi	1	2	3	4	5
Turizmdan pul ishlaydigan odamlar soni juda kam	1	2	3	4	5
Muynakda turizmda ishlaydigan ish o‘rinlari hali ham kam	1	2	3	4	5
Ko‘pchilik biznes egalari va mutaxassislar Muynakdan emas	1	2	3	4	5
Turizm tufayli hukumatdan ko‘p e’tibor va yordam olamiz	1	2	3	4	5
Turizm tufayli Muynak odamlar boshqa madaniyatlar haqida bilib oladi	1	2	3	4	5
Sayyohlar bilan muloqot qilish tufayli odamlar Muynakda turli tillarni o‘rganadi	1	2	3	4	5
Turizm rivojlanishi tufayli madaniyatimiz bilan faxrlanamiz	1	2	3	4	5
Turizm Muynakda biznes boshqaruvi haqida bilimlarni oshirdi	1	2	3	4	5
Ba’zi Muynakdagi festivallar bizning an’analarimiz va dinimizga mos kelmaydi	1	2	3	4	5
Turizm rivojlanishi sababli madaniyatimizdan faxrlanmaymiz	1	2	3	4	5
Turizm tufayli ba’zi kemalar zararlangan, masalan yozuvlar va grafittilar bor	1	2	3	4	5
Turizm tufayli ba’zi joylarning asl ko‘rinishi yo‘qoldi	1	2	3	4	5
Turizm Muynakdagi odamlar orasida atrof-muhitga e’tiborni oshirdi	1	2	3	4	5
Turizm tufayli biz atrof-muhitni tozalash va chiqindilarni boshqarishni o‘rganamiz	1	2	3	4	5

Turizm sababli Muynakda ko'proq daraxtlar ekildi	1	2	3	4	5
Turizm tufayli Muynakda chiqindi va axlat ko'paydi	1	2	3	4	5
Turizm rivojlanishi sababli Muynakda tirbandliklar oshdi	1	2	3	4	5
Sayyohlardan chiqindi boshqaruvi haqida hech narsa o'rganmaymiz	1	2	3	4	5
Turizm qurilishlari Mo'ynoqning tabiiy manzarasini buzdi	1	2	3	4	5
Muynakda turizm rivojlanishidagi qiyinchiliklar					
Til bilmaslik Muynakda turistlar bilan muloqot qilishga to'sqinlik qilmoqda	1	2	3	4	5
Muynakda suv yetishmovchiligi turizm rivojlanishiga to'siq bo'lmoqda	1	2	3	4	5
Muynak odamlarida turizm bilan shug'ullanish uchun yetarli bilim yo'q	1	2	3	4	5
Men Muynakdagi turizm tashkilotlari va fondlari haqida bilmayman	1	2	3	4	5
Hukumat Muynakda turizmni rivojlantirish uchun nima qilayotganini bilmayman	1	2	3	4	5
Moliyaviy qiyinchiliklar biz uchun turizmga biznes qilishni qiyinlashtirmoqda	1	2	3	4	5
Muynakdagi turizmni xalqaro darajada kengroq reklama qilish kerak	1	2	3	4	5
Mahalliy jamoamizning tozaligi va mehmondo'stligi yaxshilanishi kerak	1	2	3	4	5
Muynakda ko'proq turizm ob'ektlari va qulayliklar qurilishi lozim	1	2	3	4	5
Muynakda turizm rivojlanishini qo'llab-quvvatlash haqida fikringiz					
Men Muynak shahrida turizm rivojlanishini qo'llab-quvvatlayman	1	2	3	4	5
Men Muynakda ko'proq sayyohlar va turizm rivojlanishini ko'rishni xohlayman	1	2	3	4	5
Muynak odamlari turizmni yanada rivojlanishini qo'llab-quvvatashi kerak	1	2	3	4	5

Bo'lim C ni to'ldirish uchun ko'rsatma

Iltimos, quyidagi savollarga o'zingiz haqida javob bering. Bu ma'lumotlar bizga ishtirokchilar haqida yaxshiroq bilishga yordam beradi. Sizning javoblaringiz sir saqlanadi va faqat o'rganish hamda hisob-kitob uchun ishlatiladi.

1. Jinsi

- a. Erkak
- b. Ayol

2. Yoshingiz

- a. 18–25 yosh
- b. 26–35 yosh
- c. 36–45 yosh
- d. 46–55 yosh
- e. 56–60 yosh
- f. 60 yoshdan katta

3. Oilaviy holatingiz

- a. Bo'ydoq / Turmushga chiqmagan
- b. Uylangan / Turmushga chiqqan
- c. Ajrashgan
- d. Beva / Beva ayol (turmush o'rtog'i vafot etgan)

4. Kasbingiz

- a. Turizm sohasida ishlayman
- b. Turizmga aloqasi yo'q ishda ishlayman
- c. Nafaqadaman
- d. Ishsizman / Nogironman

5. Qancha vaqtdan beri bu yerda yashaysiz?

- a. 1 yildan kam
- b. 1–5 yil
- c. 6–10 yil
- d. 11–15 yil
- e. 16–20 yil
- f. 20 yildan ko'p

6. Ta'lim darajangiz

- a. Maktab o'qimaganman
- b. Maktab bitirganman
- c. Kollej bitirganman
- d. Bakalavr darajasini olganman
- e. Magistr darajasini olganman
- f. Fan doktori (PhD)

7. Oylik daromadingiz

- a. 3 000 000 so'mdan kam
- b. 3 000 000 – 5 000 000 so'm orasida
- c. 5 000 000 – 10 000 000 so'm orasida
- d. 10 000 000 so'mdan ko'p

Quantitative information sheet in Uzbek Cyrillic

Сўровнома йўриқномаси

Хурматли иштирокчи,

Сиз Муйнак шаҳрида туризм ривожланишига бағишланган PhD тадқиқоти доирасида ўтказилаётган сўровномада иштирок этишга таклиф этилмоқдасиз. Ушбу сўровноманинг мақсади — Муйнакдаги ҳозирги ва истикболдаги туризм ривожланиши бўйича фикрларингиз, қарашларингиз ва таклифларингизни тўплашдир. Сизнинг фикрларингиз жуда муҳим бўлиб, туризмнинг маҳаллий жамоа, иқтисодиёт, атроф-муҳит ва маданий меросга таъсирини чуқурроқ тушунишга ёрдам беради.

Иштирок этиш тўлиқ ихтиёрий ҳисобланади ва тўғри ёки нотўғри жавоблар мавжуд эмас. Илтимос, саволларга ўша масала бўйича шахсий тажрибангиз ва қарашларингизга асосланиб, имкон қадар холис ва ўйлаб жавоб беринг.

Сизнинг жавобларингиз тўлиқ аноним ва махфий ҳолда сақланади. Шахсни аниқловчи ҳеч қандай маълумот тўпланмайди ва барча маълумотлар фақат илмий мақсадларда фойдаланилади.

Сўровномани тўлдириш тахминан 10–15 дақиқа вақт олади. Агар ўзингизни ноқулай ҳис этсангиз, исталган саволни жавобсиз қолдиришингиз ёки сўровномани исталган вақтда тарк этишингиз мумкин.

Агар ушбу тадқиқот ёки сўровнома ҳақида саволларингиз бўлса, сўровнома охирида берилган алоқа маълумотлари орқали тадқиқотчи билан боғланишингиз мумкин.

Ушбу муҳим тадқиқотга вақт ажратганингиз ва қўшган ҳиссангиз учун катта раҳмат.

Хурмат билан,
Азизбек Аллаберганов
PhD тадқиқотчиси, География институти / JLU



Quantitative survey in Uzbek Cyrillic

А бўлимни тўлдириш учун кўрсатма

Илтимос, қуйидаги гапларни яхшилаб ўқинг. Ҳар бир гапга розимисиз ёки йўқми, “Ҳа” ёки “Йўқ”ни танланг:

Агар рози бўлсангиз — “Ҳа”ни белгиланг.

Агар рози бўлмасангиз — “Йўқ”ни белгиланг.

Арал денгизи қуриганидан олдин одамлар Муйнакка нима учун келишарди?		
Арал денгизи чўмилиш учун	Ҳа	Йўқ
Арал денгизи ёнидаги дам олиш масканида қолиш учун	Ҳа	Йўқ
Муйнак халқи маданиятини билиш учун	Ҳа	Йўқ
Қуримаган Арал денгизи ҳақида ўрганиш ва изланиш учун	Ҳа	Йўқ
Арал денгизи қуриганидан кейин, одамлар Муйнакка нима учун келишади?		
Кемалар қабристонни ва музейни кўриш учун	Ҳа	Йўқ
Арал денгизи қуриганлигини кўриш учун	Ҳа	Йўқ
Байрам ва фестивалларда қатнашиш учун	Ҳа	Йўқ
Қуриган Арал денгизи ҳақида ўрганиш ва изланиш учун	Ҳа	Йўқ
Муйнак халқи маданиятини билиш учун	Ҳа	Йўқ

В бўлимни тўлдириш учун кўрсатма

Илтимос, ҳар бир гапни диққат билан ўқинг ва Муйнак шаҳрида туризм ривожланишининг таъсири, муаммолари ва уни қўллаб-қувватлаш даражангизни белгиланг. Қуйидаги ўлчовдан фойдаланинг:

- 1 – Умуман қўшилмайман
- 2 – Қўшилмайман
- 3 – Аниқ фикрим йўқ
- 4 – Қўшиламан
- 5 – Тўлиқ қўшиламан

Муйнак шаҳрида туризм ривожланишининг таъсири					
Туризм сабабли Муйнакда йўллар ва бинолар яхшиланди	1	2	3	4	5
Туризм туфайли Муйнакда музейлар ва кемалар қабристони қурилди	1	2	3	4	5
Туризм ривожланиши Муйнакда туризм соҳасида иш ўринлари яратди	1	2	3	4	5
Туризм туфайли Муйнакда даромад топиш имкониятлари ошди	1	2	3	4	5
Туризм ривожланиши сабабли Муйноқда яшаш даражамиз яхшиланди	1	2	3	4	5
Туризм туфайли Муйнакда бизнеслар кўпайди	1	2	3	4	5
Туризм ривожлангани учун Муйноқда яшаш қимматлашиб кетди	1	2	3	4	5
Туризмдан пул ишлайдиган одамлар сони жуда кам	1	2	3	4	5
Муйнакда туризмда ишлайдиган иш ўринлари ҳали ҳам кам	1	2	3	4	5
Кўпчилик бизнес эгалари ва мутахассислар Муйнакдан эмас	1	2	3	4	5
Туризм туфайли ҳукуматдан кўп эътибор ва ёрдам оламиз	1	2	3	4	5
Туризм туфайли Муйнак одамлари бошқа маданиятлар ҳақида билиб олади	1	2	3	4	5
Сайёҳлар билан мулоқот туфайли одамлар Муйнакда тиллар ўрганади	1	2	3	4	5
Туризм ривожланиши туфайли маданиятимиз билан фахрланамиз	1	2	3	4	5
Туризм Муйнакда бизнес бошқаруви ҳақидаги билимларни оширди	1	2	3	4	5
Баъзи Муйнакдаги фестиваллар бизнинг анъаналар ва динга мос келмайди	1	2	3	4	5
Туризм ривожланиши сабабли маданиятимиздан фахрланмаймиз	1	2	3	4	5
Туризм туфайли баъзи кемалар зарарланган, масалан ёзув ва граффити бор	1	2	3	4	5
Туризм туфайли баъзи жойларнинг асил кўриниши йўқолди	1	2	3	4	5

Туризм Муйнақдаги одамлар орасида агроф-муҳитга эътиборни оширди	1	2	3	4	5
Туризм туфайли агрофни тозалаш ва чиқиндиларни бошқаришни ўрганамиз	1	2	3	4	5
Туризм сабабли Муйнақда кўпроқ дарахтлар экилади	1	2	3	4	5
Туризм туфайли Муйнақда чиқинди ва ахлат кўпайди	1	2	3	4	5
Туризм ривожланиши сабабли Муйнақда тирбандликлар ошди	1	2	3	4	5
Сайёҳлардан чиқинди бошқаруви ҳақида ҳеч нарса ўрганмаймиз	1	2	3	4	5
Туризм қурилишлари Муйнокнинг табиий манзарасини бузди	1	2	3	4	5
Муйнақда туризм ривожланишидаги қийинчиликлар					
Тил билмаслик туристлар билан мулоқот қилишга тўсқинлик қилмоқда	1	2	3	4	5
Муйнақда сув етишмовчилиги туризм ривожланишига тўсиқ бўлмоқда	1	2	3	4	5
Муйнақ одамларида туризм билан шуғулланиш учун етарли билим йўқ	1	2	3	4	5
Мен Муйнақдаги туризм ташкилотлари ва фондлари ҳақида билмайман	1	2	3	4	5
Ҳукумат туризмни ривожлантириш учун нима қилаётганини билмайман	1	2	3	4	5
Молиявий қийинчиликлар туризмда бизнес қилишни қийинлаштирмоқда	1	2	3	4	5
Муйнақдаги туризмни халқаро даражада кенгроқ реклама қилиш керак	1	2	3	4	5
Маҳаллий жамоамизнинг тозалиги ва меҳмондўстлиги яхшиланиши керак	1	2	3	4	5
Муйнақда кўпроқ туризм объектлари ва қулайликлар қурилиши лозим	1	2	3	4	5
Муйнақда туризм ривожланишини қўллаб-қувватлаш ҳақида фикрингиз					
Мен Муйнақ шаҳрида туризм ривожланишини қўллаб-қувватлайман	1	2	3	4	5
Мен кўпроқ сайёҳлар ва туризм ривожланишини кўришни хоҳлайман	1	2	3	4	5
Муйнақ одамлари туризмнинг ривожланишини қўллаб-қувватлаши керак	1	2	3	4	5

С бўлимни тўлдириш учун кўрсатма

Илтимос, қуйидаги саволларга ўзи ҳақингизда жавоб беринг. Бу маълумотлар бизга иштирокчилар ҳақида яхшироқ тушунишга ёрдам беради. Сизнинг жавобларингиз сир сақланади ва фақат тадқиқот ва ҳисоб-китоб учун ишлатилади.

1. Жинсингиз
 - a. Эркак
 - b. Аёл
2. Ёшингиз
 - a. 18–25 ёш
 - b. 26–35 ёш
 - c. 36–45 ёш
 - d. 46–55 ёш
 - e. 56–60 ёш
 - f. 60 ёшдан катта
3. Оилавий ҳолатингиз
 - a. Бўйдоқ / Турмушга чиқмаган
 - b. Уйланган / Турмушга чиққан
 - c. ажрашган
 - d. Бева / Бева аёл (турмуш ўртоғи вафот этган)
4. Касбингиз
 - a. Туризм соҳасида ишлайман
 - b. Туризмга алоқаси йўқ ишда ишлайман
5. Қанча вақтдан бери бу ерда яшайсиз?
 - a. 1 йилдан кам
 - b. 1–5 йил
 - c. 6–10 йил
 - d. 11–15 йил
 - e. 16–20 йил
 - f. 20 йилдан кўп
6. Таълим даражангиз
 - a. Мактаб ўқимаганман
 - b. Мактаб битирганман
 - c. Коллеж битирганман
 - d. Бакалавр даражасига эгаман
 - e. Магистр даражасига эгаман
 - f. Фан доктори (PhD)
7. Ойлик даромадингиз
 - a. 3 000 000 сўмдан кам
 - b. 3 000 000 – 5 000 000 сўм орасида
 - c. 5 000 000 – 10 000 000 сўм орасида
 - d. 10 000 000 сўмдан кўп
8. Нафақадаман
 - d. Ишсизман / Ногиронман

Quantitative information sheet in Karakalpak Latin

Sorawnama boyınsha kórsetpe

Húrmetli qatnasıwshı,

Siz Moynaq qalasında turizmdi rawajlandırıwǵa qaratılǵan PhD izertlewı sheńberinde ótkerilip atırǵan ilimiy sorawnamada qatnasıwǵa mirát etilesiz. Bul sorawnamanıń maqseti – Moynaqtaǵı házirgi hám keleshekтеgi turizmniń rawajlanıwı haqqındaǵı pikirlerińiz, kóz-qaraslarıńız hám usınıslarıńızdı toplaw. Siziń pikirinińiz oǵada áhmiyetli bolıp, turizmniń jergilikli jámiyet, ekonomika, qorshaǵan ortalıq hám mádeniy miyrasqa tásin jaqsıraq túsiniwge járdem beredi.

Qatnasıw pútkilley ıqtıyarlı bolıp, bul jerde durıs yamasa nadurıs juwaplar joq. Ótinish, hár bir sorawǵa ilajı barınsha ashıq hám óz tájiriybeńiz hám de kóz-qaraslarıńız tiykarında oylanıp juwap beriń.

Siziń juwaplarıńız tolıq anonim hám sır saqlanadı. Hesh qanday jeke maǵlıwmat toplanbaydı, barlıq maǵlıwmatlar tek ilimiy izertlew maqsetinde paydalanıladı.

Sorawnamanı toltırıw shama menen 10-15 minut waqtınızdı aladı. Qáleseńiz ózińiz qolaysız sezgen sorawlardı qaldırıp ketiwińiz yaki qálegen waqıtta sorawnamadan shıǵıp ketiwińiz múmkin.

Eger sizde usı izertlew yamasa sorawnama haqqında sorawlar bolsa, ótinish, sorawnamanıń aqırında keltirilgen baylanıs maǵlıwmatları arqalı izertlewshı menen baylanısıń.

Izertlewge ajratqan waqtınız hám qosqan úlesińiz ushın úlken raxmet.

Húrmet penen,

Azizbek Allaberganov.

PhD izertlewshı, Geografiya institutı / JLU



Quantitative survey in Karakalpak Latin

A bólimin tolturıw ushin kórsetpe

Tómendegi pikirlerdi jaqsılap oqıń. Hár bir pikirge qosılatuǵınıńız yaqı qosılmaytuǵınıńızdı «Awa» yamasa «Yaq» juwabın tańlaw arqalı ańlatıń:

Pikirge qosılatuǵın bolsańız — “Awa”nı belgileń.

Qosılmaytuǵın bolsańız — “Yaq” nı belgileń.

Aral teńizi qurıwınan aldın adamlar Moynaqqa ne ushin keletuǵın edı?		
Aral teńizinde shomılıw ushin	Awa	Yaq
Aral teńiziniń janındaǵı dem alıw ornında dem alıw ushin	Awa	Yaq
Moynaq xalqınıń mádeniyatı menen tanısıw ushin	Awa	Yaq
Suwǵa tolı Aral teńizin kóriw hám onı izertlew ushin	Awa	Yaq
Aral teńizi qurıǵannan keyin, adamlar Moynaqqa ne ushin kele basladı?		
Kemeler qoyımshılıǵın hám muzeydi kóriw ushin	Awa	Yaq
Aral teńiziniń qurıp qalǵanlıǵın kóriw ushin	Awa	Yaq
Bayramlar hám festivallardıǵa qatnasıw ushin	Awa	Yaq
Suwı tartılǵan Aral teńizin kóriw hám onı izertlew ushin	Awa	Yaq
Moynaq xalqınıń mádeniyatı menen tanısıw ushin	Awa	Yaq

B bólimin tolturıw ushin kórsetpe

Hár bir pikirdi diqqat penen oqıń hám Moynaq qalasında turizm rawajlanıwınıń tásirini, mashqalaları hám onı qollap-quwatlaw dárejesin belgileń. Tómendegi ólshemnen paydalanıń:

- 1 – Ulıwma qosılmayman
- 2 – Qosılmayman
- 3 – Anıq pikirim joq
- 4 – Qosılaman
- 5 – Tolıq qosılaman

Moynaq qalasında turizm rawajlanıwınıń tásirini					
Turizm sebepli Moynaqta jollar hám imaratlar jaqsılandı	1	2	3	4	5
Turizm sebepli Moynaqta «kemeler qoyımshılıǵı» hám muzey qurıldı	1	2	3	4	5
Turizmniń rawajlanıwı Moynaqta turizm tarawı boyınsha jumıs orınları jaratılıwına sebep boldı	1	2	3	4	5
Turizm sebepli Moynaqta dáramat tabıw imkaniyatları arttı	1	2	3	4	5
Turizm rawajlanǵanlıǵı sebepli Moynaqta xalıqtıń jasaw dárejesi jaqsılandı	1	2	3	4	5
Turizm sebepli Moynaqta biznesler kóbeydi	1	2	3	4	5
Turizm rawajlanǵanlıǵı sebepli Moynaqta jasaw qımbatlasıp ketti	1	2	3	4	5
Turizm arqalı pul tabatuǵın adamlar sanı oǵada az	1	2	3	4	5
Moynaqta turizm tarawı boyınsha jumıs orınları ele de az	1	2	3	4	5
Kópshilik biznes iyeleri hám qániygeler Moynaqtan emes	1	2	3	4	5
Turizm sebepli húkimettiń itibarına iye bolamız hám kóp járdem alamız	1	2	3	4	5
Turizm arqalı Moynaq xalqı basqa mádeniyatlar haqqında bilip aladı	1	2	3	4	5
Sayaxatshılar menen sóylesiw arqalı Moynaqtaǵı adamlar túrli tillerdi úyrenedi	1	2	3	4	5
Turizm rawajlanıwı sebepli mádeniyatımız benen maqtana alamız	1	2	3	4	5
Turizm Moynaqta biznes basqarıwı haqqındaǵı bilimlerde arttırdı	1	2	3	4	5
Moynaqta ótkizilip atırǵan ayırım festivallar biziń dástúrlerimiz hám dinimizge sáykes kelmeydi	1	2	3	4	5
Turizmniń rawajlanıwı mádeniyatımız benen maqtanıwǵa sebep bolıp atırǵan joq	1	2	3	4	5
Turizm sebepli bazı kemelerge zıyan jetkizilgen, jazılǵan, sızilǵan (graffiti)	1	2	3	4	5
Turizm sebepli ayırım jerlerdiń ázelgi kórinisi joǵaldı	1	2	3	4	5
Turizm Moynaq xalqında qorshaǵan ortalıqqa itibardı arttırdı	1	2	3	4	5

Turizm sebepli biz qorshağan ortalıqtı taza uslaw hám shıǵındılar ústinen qadaǵalaw ornadıwı úyrenemiz	1	2	3	4	5
Turizm sebepli Moynaqta kóp terekler egildi	1	2	3	4	5
Turizm sebepli Moynaqta taslandı hám shıǵındılar kóbeydi	1	2	3	4	5
Turizm rawajlanıwı sebepli Moynaqta joldaǵı tıǵızlıqlar arttı	1	2	3	4	5
Sayaxatshılardan shıǵındıardı basqarıw haqqında hesh nárese úyrenbeymiz	1	2	3	4	5
Turizm qurılısları Moynaqtıń tábiyiy kórinisin buzdı	1	2	3	4	5
Moynaqta turizm rawajlanıwındaǵı qıyınshılıqlar					
Til bilmew Moynaqta turistler menen sóylesiwge tosqınlıq etpekte	1	2	3	4	5
Moynaqta suw jetispewshiligi turizmniń rawajlanıwına kesent bermekte	1	2	3	4	5
Moynaq xalqında turizm menen shuǵıllanıw ushın jeterli bilim joq	1	2	3	4	5
Men Moynaqtaǵı turizm shólkemleri hám fondları haqqında bilmeymen	1	2	3	4	5
Húkimet Moynaqta turizmdi rawajlandırıw ushın ne islep atırǵanlıǵın bilmeymen	1	2	3	4	5
Qarjı menen baylanıshlı qıyınshılıqlar biz ushın turizm tarawında biznes júrgiziwdi qıyınlastırmaqta	1	2	3	4	5
Moynaqtaǵı turizmdi xalıqaralıq dárejede keńirek reklama etiw gerek	1	2	3	4	5
Jergilikli jámiyetimizde tazalıq hám miymandoslıq jaqsılanıwı gerek	1	2	3	4	5
Moynaqta kóbirek turizm obyektleri qurılıp, qolaylılıqlar támiyinleniwı gerek	1	2	3	4	5
Moynaqta turizm rawajlanıwın qollap-quwatlaw haqqında pikirinińiz					
Men Moynaq qalasında turizmniń rawajlanıwın qollap-quwatlayman	1	2	3	4	5
Men Moynaqta turizmniń rawajlanıwın hám kóbirek sayaxatshılardı kóriwdi qáleymen	1	2	3	4	5
Moynaqtıń xalqı turizmniń ele de rawajlanıwın qollap-quwatlawı gerek	1	2	3	4	5

C bólimin toltırıw ushın kórsetpe

Ótinish, tómendegi sorawlarǵa juwap beriń. Bul maǵlıwmatlar bizge qatnasıwshılar haqqında jaqsıraq biliwge járdem beredi. Siziń juwaplarıńız qurıya saqlanadı hám tek ǵana úyrenip shıǵıw hám esap-kitap ushın paydalanıladı.

1. Jımsıńız:

- a. Erkek
- b. Hayal

2. Jasıńız:

- a. 18–25 jas
- b. 26–35 jas
- c. 36–45 jas
- d. 46–55 jas
- e. 56–60 jas
- f. 60 jastan úlken

3. Shańaraqlıq jaǵdayıńız:

- a. Boydaq / Turmısqa shıqpaǵan
- b. Úylengen / Turmısqa shıqqan
- c. Ajirasqan
- d. Tul / Jesir (ómirlik joldası qaytıw bolǵan)

4. Kásibińiz:

- a. Turizm tarawında jumıs isleymen
- b. Turizmge qatnası joq jumısta isleymen
- v. Pensiyadaman
- g. Jumıssızban / Náǵıranman

5. Qashannan berli bul jerde jasap atırsız?

- a. 1 jil tolmađı
- b. 1–5 jil
- c. 6–10 jil
- d. 11–15 jil
- e. 16–20 jil
- f. 20 jildan kóp

6. Maǵlıwmatıńız:

- a. Mektepte oqımaǵanman
- b. Mektepti pitirgenmen
- c. Kollejdi pitirgenmen
- d. Bakalavr dárejesin alǵanman
- e. Magistr dárejesin alǵanman
- f. Pán doktori (PhD)

7. Aylıq dáramatıńız:

- a. 3 000 000 swmnan az
- b. 3 000 000 – 5 000 000 swm aralıǵında
- c. 5 000 000 – 10 000 000 swm aralıǵında
- d. 10 000 000 swmnan kóp

Quantitative information sheet in Karakalpak Cyrillic

Сораўнама бойынша көрсетпе

Хүрметли қатнасыўшы,

Сиз Мойнақ қаласында туризмди раўажландырыўға қаратылған PhD изертлеўи шеңберинде өткерилип атырған илимий сораўнамада қатнасыўға мирәт етилесиз. Бул сораўнаманың мақсети – Мойнақтағы хәзирги хәм келешектеги туризмниң раўажланыўы ҳаққындағы пикирлериңиз, көз-қарасларыңыз хәм усынысларыңызды топлаў. Сизиң пикириңиз оғада әхмийетли болып, туризмниң жергиликли жәмийет, экономика, қоршаған орталық хәм мәдений мийрасқа тәсирин жақсырақ түсиниўге жәрдем береди.

Қатнасыў пүткиллей ықтыярлы болып, бул жерде дурыс ямаса надурыс жуўаплар жоқ. Өтиниш, хәр бир сораўға илажы барынша ашық хәм өз тәжирийбеңиз хәм де көз-қарасларыңыз тийкарында ойланып жуўап бериң.

Сизиң жуўапларыңыз толық аноним хәм сыр сақланады. Хәш қандай жеке мағлыўмат топланбайды, барлық мағлыўматлар тек илимий изертлеў мақсетинде пайдаланылады.

Сораўнаманы толтырыў шама менен 10-15 минут ўақтыңызды алады. Қәлесеңиз өзиңиз қолайсыз сезген сораўларды қалдырып кетиўиңиз яки қәлеген ўақытта сораўнамадан шығып кетиўиңиз мүмкин.

Егер сизде усы изертлеў ямаса сораўнама ҳаққында сораўлар болса, өтиниш, сораўнаманың ақырында келтирилген байланыс мағлыўматлары арқалы изертлеўши менен байланысың.

Изертлеўге ажыратқан ўақтыңыз хәм қосқан үлесиңиз ушын үлкен рахмет.

Хүрмет пенен,

Азизбек Аллаберганов.

PhD изертлеўши, География институты / JLU



Quantitative survey in Karakalpak Cyrillic

А бөлимин толтырыу үшін көрсетпе

Төмендеги пикирлерди жақсылап оқың. Хәр бир пикирге қосылатуғыныңыз яки қосылмайтуғыныңызды «Аўа» ямаса «Як» жуўабын таңлау арқалы аңлатың:

Пикирге қосылатуғын болсаңыз — “Аўа” ны белгилең.

Қосылмайтуғын болсаңыз — “Як” ты белгилең.

Арал теңизи қурыўынан алдын адамлар Мойнаққа не ушын келетуғын еди?		
Арал теңизинде шомылыу ушын	Аўа	Як
Арал теңизиниң жанындағы дем алыу орнында дем алыу ушын	Аўа	Як
Мойнақ халқының мәденияты менен танысыу ушын	Аўа	Як
Суўға толы Арал теңизин көриу ҳәм оны изертлеу ушын	Аўа	Як
Арал теңизи қурығаннан кейин, адамлар Мойнаққа не ушын келе баслады?		
Кемелер қойымшылығын ҳәм музейди көриу ушын	Аўа	Як
Арал теңизиниң қурып қалғанлығын көриу ушын	Аўа	Як
Байрамлар ҳәм фестивалларға қатнасыу ушын	Аўа	Як
Суўы тартылған Арал теңизин көриу ҳәм оны изертлеу ушын	Аўа	Як
Мойнақ халқының мәденияты менен танысыу ушын	Аўа	Як

В бөлимин толтырыу үшін көрсетпе

Хәр бир пикирди дыққат пенен оқың ҳәм Мойнақ қаласында туризм раўажланыўының тәсири, машқалалары ҳәм оны қоллап-қуўатлау дәрежесин белгилең. Төмендеги өлшемнен пайдаланың:

- 1 – Улыўма қосылмайман
- 2 – Қосылмайман
- 3 – Анық пикирим жоқ
- 4 – Қосыламан
- 5 – Толық қосыламан

Мойнақ қаласында туризм раўажланыўының тәсири					
Туризм себепли Мойнақта жоллар ҳәм имаратлар жақсыланды	1	2	3	4	5
Туризм себепли Мойнақта «кемелер қойымшылығы» ҳәм музей қурылды	1	2	3	4	5
Туризмниң раўажланыўы Мойнақта туризм тараўы бойынша жұмыс орынлары жаратылыўына себеп болды	1	2	3	4	5
Туризм себепли Мойнақта дәрәмат табыу имканиятлары артты	1	2	3	4	5
Туризм раўажланғанлығы себепли Мойнақта халықтың жасау дәрежеси жақсыланды	1	2	3	4	5
Туризм себепли Мойнақта бизнеслер көбейди	1	2	3	4	5
Туризм раўажланғанлығы себепли Мойнақта жасау қымбатласып кетти	1	2	3	4	5
Туризм арқалы пул табатуғын адамлар саны оғада аз	1	2	3	4	5
Мойнақта туризм тараўы бойынша жұмыс орынлары еле де аз	1	2	3	4	5
Көпшилик бизнес ийелери ҳәм қәнийгелер Мойнақтан емес	1	2	3	4	5
Туризм себепли ҳүкметтиң итибарына ийе боламыз ҳәм көп жәрдем аламыз	1	2	3	4	5
Туризм арқалы Мойнақ халқы басқа мәдениятлар ҳаққында билип алады	1	2	3	4	5
Саяхатшылар менен сөйлесиу арқалы Мойнақтағы адамлар түрли тиллерди үйренеди	1	2	3	4	5
Туризм раўажланыўы себепли мәдениятымыз бенен мақтана аламыз	1	2	3	4	5
Туризм Мойнақта бизнес басқарыўы ҳаққындағы билимлерди арттырды	1	2	3	4	5
Мойнақта өткизилип атырған айырым фестиваллар бизиң дәстүрлеримиз ҳәм динимизге сәйкес келмейди	1	2	3	4	5
Туризмниң раўажланыўы мәдениятымыз бенен мақтаныўға себеп болып атырған жоқ	1	2	3	4	5
Туризм себепли базы кемелерге зыян жеткизилген, жазылған, сызылған (граффити)	1	2	3	4	5

Туризм себепли айырым жерлердин эзелги көриниси жоғалды	1	2	3	4	5
Туризм Мойнақ халқында қоршаған орталыққа итибарды арттырды	1	2	3	4	5
Туризм себепли биз қоршаған орталықты таза ұстау хәм шығындылар үстинен қадағалау орнатыуды үйренемиз	1	2	3	4	5
Туризм себепли Мойнақта көп тереклер егилди	1	2	3	4	5
Туризм себепли Мойнақта тасланды хәм шығындылар көбейди	1	2	3	4	5
Туризм раўажланыуы себепли Мойнақта жолдағы тығызлықлар артты	1	2	3	4	5
Саяхатшылардан шығындыларды басқаруу ҳаққында ҳеш нәрсе үйренбеймиз	1	2	3	4	5
Туризм қурылыслары Мойнақтың тәбийий көринисин бузды	1	2	3	4	5
Мойнақта туризм раўажланыуындағы қыйыншылықлар					
Тил билмеу Мойнақта туристлер менен сөйлесууге тосқынлық етпекте	1	2	3	4	5
Мойнақта суу жетиспеушилиги туризмнің раўажланыуына кесент бермекте	1	2	3	4	5
Мойнақ халқында туризм менен шуғылланыуы ушын жетерли билим жоқ	1	2	3	4	5
Мен Мойнақтағы туризм шөлкемлери хәм фондлары ҳаққында билмеймен	1	2	3	4	5
Хүкимет Мойнақта туризмди раўажландырууы ушын не ислеп атырғанлығын билмеймен	1	2	3	4	5
Қаржы менен байланыслы қыйыншылықлар биз ушын туризм тарауында бизнес жүргизууде қыйынластырмақта	1	2	3	4	5
Мойнақтағы туризмди халықаралық дәрежеде кеңирек реклама етиу керек	1	2	3	4	5
Жергиликли жәмийетимизде тазалық хәм миймандослық жақсыланыуы керек	1	2	3	4	5
Мойнақта көбирек туризм объектлери қурылып, қолайлылықлар тәмийинленуи керек	1	2	3	4	5
Мойнақта туризм раўажланыуын қоллап-қуўатлау ҳаққында пикириңиз					
Мен Мойнақ қаласында туризмнің раўажланыуын қоллап-қуўатлайман	1	2	3	4	5
Мен Мойнақта туризмнің раўажланыуын хәм көбирек саяхатшыларды көриуде қәлеймен	1	2	3	4	5
Мойнақтың халқы туризмнің еле де раўажланыуын қоллап-қуўатлауы керек	1	2	3	4	5

С бөлимин толтырууы ушын көрсетпе

Өтиниш, төмендеги сорауларға жууап берин. Бул мағлыұматлар бизге қатнасыушылар ҳаққында жақсырақ билиуге жәрдем береди. Сизин жууапларыңыз купья сақланады хәм тек ғана үйренип шығуу хәм есап-китап ушын пайдаланылады.

1. Жынысыңыз:

- c. Еркек
- d. Хаял

2. Жасыңыз:

- g. 18–25 жас
- h. 26–35 жас
- i. 36–45 жас
- j. 46–55 жас
- k. 56–60 жас
- l. 60 жастан үлкен

3. Шаңарақлық жағдайыңыз:

- e. Бойдақ / Турмысқа шықпаған
- f. Үйленген / Турмысқа шыққан
- g. Ажырасқан
- h. Тул / Жесир (өмирлик жолдасы қайтыс болған)

4. Кәсибиңиз:

- a. Туризм тарауында жұмыс ислеймен
- б. Туризмге қатнасы жоқ жұмыста ислеймен
- в. Пенсиядаман
- г. Жұмыссызбан / Нәгиранман

5. Қашаннан берли бул жерде жасап атырсыз?

- g. 1 жыл толмады
- h. 1–5 жыл
- i. 6–10 жыл
- j. 11–15 жыл
- k. 16–20 жыл
- l. 20 жылдан көп

6. Мағлыұматыңыз:

- g. Мектепте оқымағанман
- h. Мектепти питиргенмен
- i. Коллежди питиргенмен
- j. Бакалавр дәрежесин алғанман
- k. Магистр дәрежесин алғанман
- l. Пән докторы (PhD)

7. Айлық дәраматыңыз:

- e. 3 000 000 сўмнан аз
- f. 3 000 000 – 5 000 000 сўм аралығында
- g. 5 000 000 – 10 000 000 сўм аралығында
- h. 10 000 000 сўмнан көп

Descriptive statistics

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	88	46.1	46.1	46.1
	Female	103	53.9	53.9	100.0
	Total	191	100.0	100.0	

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	57	29.8	29.8	29.8
	26-35	28	14.7	14.7	44.5
	36-45	49	25.7	25.7	70.2
	46-55	27	14.1	14.1	84.3
	56-60	20	10.5	10.5	94.8
	Over 60	10	5.2	5.2	100.0
	Total	191	100.0	100.0	

Mar.Status					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	52	27.2	27.2	27.2
	Married	134	70.2	70.2	97.4
	Divorced	5	2.6	2.6	100.0
	Total	191	100.0	100.0	

Occupation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tourism related	22	11.5	11.5	11.5
	Non-tourism related	85	44.5	44.5	56.0
	Retired	26	13.6	13.6	69.6
	Unemployed/disabled	58	30.4	30.4	100.0
	Total	191	100.0	100.0	

L.Residence					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 years	1	.5	.5	.5
	6-10 years	1	.5	.5	1.0
	11-15 years	4	2.1	2.1	3.1
	16-20 years	29	15.2	15.2	18.3
	Over 20 years	156	81.7	81.7	100.0
	Total	191	100.0	100.0	

Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High school	67	35.1	35.1	35.1
	College	100	52.4	52.4	87.4
	Undergraduate	15	7.9	7.9	95.3
	Graduate	9	4.7	4.7	100.0
	Total	191	100.0	100.0	

Income					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 3,000,000 sums	134	70.2	70.2	70.2
	3,000,000 – 5,000,000 sums	45	23.6	23.6	93.7
	5,000,000 – 10,000,000 sums	11	5.8	5.8	99.5
	More than 10,000,000 sums	1	.5	.5	100.0
	Total	191	100.0	100.0	

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Econ	191	1.70	5.00	3.1047	.52288
Cul	191	1.00	5.00	2.4839	.78584
Env	191	1.60	5.00	3.5675	.70992
Chal	191	1.60	4.00	2.9780	.46264
Sup	191	1.67	5.00	4.3298	.62407
Valid N (listwise)	191				

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
infra_imp	191	1.00	5.00	4.3560	.67975
mus_cem	191	2.00	5.00	4.4241	.60109
job_cre	191	1.00	5.00	2.5340	1.09431
earn_opp	191	1.00	5.00	2.5079	1.14188
stan_inc	191	1.00	5.00	2.4398	1.13568
bus_inc	191	1.00	5.00	2.5288	1.26406
rlim_ben	191	1.00	5.00	2.5864	1.14782
rlim_job	191	1.00	5.00	2.5183	1.20457
rfor_own	191	1.00	5.00	3.4031	1.12380
Valid N (listwise)	191				

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
inc_att	191	1.00	5.00	2.2461	1.02453
cul_ex	191	1.00	5.00	2.8586	1.19909
lan_lern	191	1.00	5.00	2.8586	1.21652
bus_lern	191	1.00	5.00	3.0366	1.27061
rbad_fes	191	1.00	5.00	1.9634	1.07298
rno_pri	191	1.00	5.00	2.3979	1.23066
rship_van	191	1.00	5.00	2.0262	1.05349
Valid N (listwise)	191				

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
env_aware	191	1.00	5.00	3.5969	1.13313
tree_plan	191	1.00	5.00	4.2932	.75247
rinc_jam	191	1.00	5.00	3.2356	1.24054
rno_man	191	1.00	5.00	3.5026	1.09002
rbad_scap	191	1.00	5.00	3.2094	1.30912
Valid N (listwise)	191				

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
lan_bar	191	1.00	5.00	3.8901	1.04300
no_exp	191	1.00	5.00	3.9634	1.12096
no_clea	191	1.00	5.00	3.9634	1.00195
ryes_pro	191	1.00	5.00	1.6492	.86297
ryes_amen	191	1.00	5.00	1.4241	.65151
Valid N (listwise)	191				

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
i_sup	191	1.00	5.00	4.1204	.96308
i_see	191	1.00	5.00	4.3822	.74374
loc_sup	191	1.00	5.00	4.4869	.67167
Valid N (listwise)	191				

Exploratory statistics

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.729
Bartlett's Test of Sphericity	Approx. Chi-Square
	563.624
	df
	45
	Sig.
	<.001

Rotated Factor Matrix ^a			
	Factor		
	1	2	3
infra_imp			.815
mus_cem			.555
job_cre	.674		
earn_opp	.801		
stan_inc	.861		
bus_inc	.614		
rexp_live			
rlim_ben		.532	
rlim_job		.735	
rfor_own		.536	
Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 5 iterations.			

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.781
Bartlett's Test of Sphericity	Approx. Chi-Square
	418.632
	df
	28
	Sig.
	<.001

Rotated Factor Matrix^a		
	Factor	
	1	2
inc_att	.675	
cul_ex		.823
lan_lern	.563	.539
bus_lern	.600	
rbad_fes	.592	
rno_pri	.503	.410
rship_van	.492	
rauth_los		

Extraction Method: Principal Axis Factoring.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 3 iterations.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.733
Bartlett's Test of Sphericity	Approx. Chi-Square	141.831
	df	15
	Sig.	<.001

Rotated Factor Matrix^a		
	Factor	
	1	2
env_aware	.459	
tree_plan		.513
rinc_gar		
rinc_jam	.694	
rno_man	.625	
rbad_scap	.600	

Extraction Method: Principal Axis Factoring.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 3 iterations.

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.623
Bartlett's Test of Sphericity	Approx. Chi-Square
	125.173
	df
	28
	Sig.
	<.001

Rotated Factor Matrix^a			
	Factor		
	1	2	3
lan_bar	.761		
no_wat			
no_exp	.554		
no_clea			.407
no_fin			
ryes_pro		.811	
ryes_hos			
ryes_amen		.410	
Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 5 iterations.			

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.642
Bartlett's Test of Sphericity	Approx. Chi-Square
	100.295
	df
	3
	Sig.
	<.001

Factor Matrix^a	
	Factor
	1
i_sup	.547
i_see	.821
loc_sup	.609
Extraction Method: Principal Axis Factoring. a. 1 factors extracted. 19 iterations required.	

Predictive statistics

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change	Durbin-Watson
						F Change	df1	df2		
1	.376 ^a	.141	.123	.58451	.141	7.647	4	186	<.001	1.929

a. Predictors: (Constant), Chal, Econ, Env, Cul
b. Dependent Variable: Sup

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.451	4	2.613	7.647	<.001 ^b
	Residual	63.547	186	.342		
	Total	73.998	190			

a. Dependent Variable: Sup
b. Predictors: (Constant), Chal, Econ, Env, Cul

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	Collinearity Statistics	
		B	Std. Error				Tolerance	VIF
1	(Constant)	2.698	.400		6.748	<.001		
	Econ	.259	.109	.217	2.372	.019	.551	1.816
	Cul	-.090	.072	-.114	-1.252	.212	.559	1.790
	Env	.240	.064	.273	3.738	<.001	.867	1.153
	Chal	.066	.093	.049	.708	.480	.972	1.029

a. Dependent Variable: Sup

Residuals Statistics^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.6559	4.9256	4.3298	.23453	191
Std. Predicted Value	-2.874	2.540	.000	1.000	191
Standard Error of Predicted Value	.049	.188	.091	.028	191
Adjusted Predicted Value	3.7940	4.9546	4.3322	.23374	191
Residual	-2.70617	1.06195	.00000	.57832	191
Std. Residual	-4.630	1.817	.000	.989	191
Stud. Residual	-4.713	1.837	-.002	1.006	191
Deleted Residual	-2.80384	1.08572	-.00236	.59787	191
Stud. Deleted Residual	-5.008	1.849	-.006	1.023	191
Mahal. Distance	.330	18.666	3.979	3.208	191
Cook's Distance	.000	.245	.007	.024	191
Centered Leverage Value	.002	.098	.021	.017	191

a. Dependent Variable: Sup