



MINISTRY OF TRANSPORT AND
INFRASTRUCTURE, REPUBLIC OF TÜRKİYE

GENERAL DIRECTORATE
OF HIGHWAYS



Member States' Experiences in Measuring the Environmental Impacts of Transport Infrastructures

1915 Canakkale Bridge and Motorway

Erdoğan DEDEOĞLU
Deputy Division Director

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PUBLIC AND PRIVATE SECTOR PARTNERSHIP
REGIONAL DIRECTORATE



Contents



1. Introduction

- 1.1. Brief Overview of the 1915Çanakkale Bridge and Motorway Project
- 1.2. Importance of Assessing Environmental Impacts of Transport Infrastructure Projects

2. Methodology

- 2.1. Overview of Methods and Tools Used
- 2.2. Data Collection and Analysis
- 2.3. Stakeholder Involvement and Consultation

3. Environmental Impact of the 1915Çanakkale Bridge and Motorway and Mitigation Measures

- 3.1. Direct Impacts
- 3.2. Indirect Impacts
- 3.3. Benefits

4. Lessons Learned and Best Practices

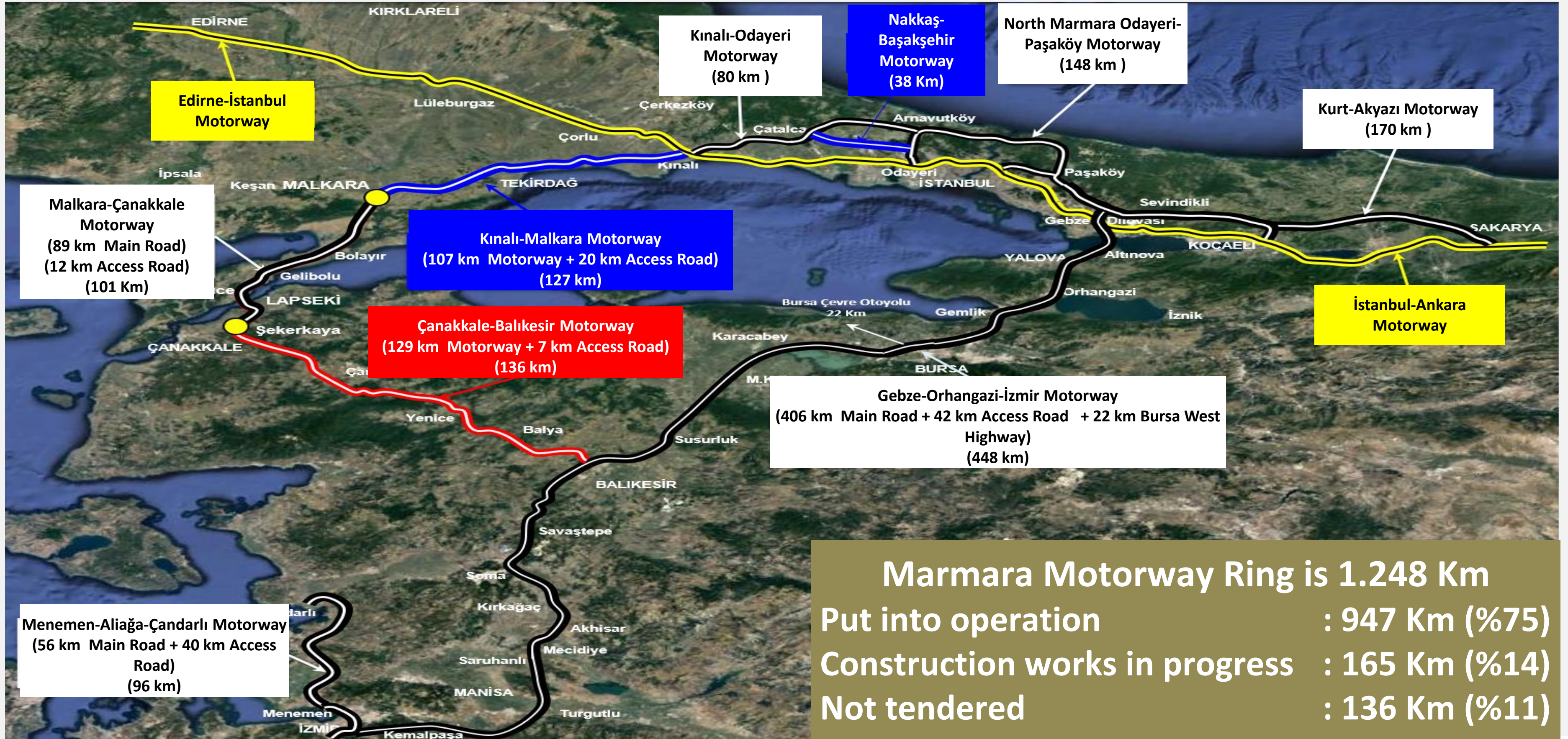
- 5.1. Challenges Faced
- 5.2. Key Success Factors and Best Practices
- 5.3. Recommendations for Future Transport Infrastructure Projects

5. Conclusion



1. Introduction

1.1. Brief Overview



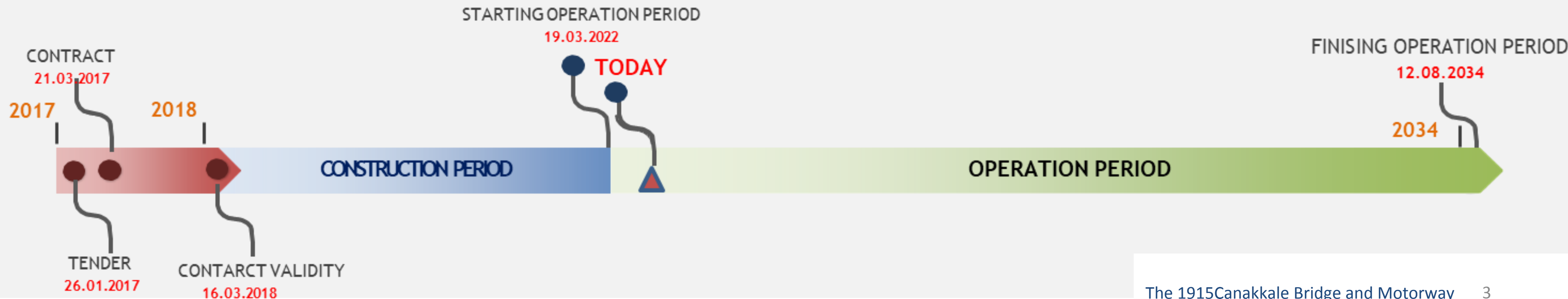


1. Introduction

1.1. Brief Overview



- **Project Length** : **101 Km. (89 Km Motorway+ 12 Km Connection Road)**
- **Tender Date** : **26 January 2017**
- **Contract Period** : **16 Years 2 Months 12 Days (Construction + Operation)**
(5 Years 6 Months Construction + 10 Years 8 Months 12 Days-Operation)
- **Total Investment Amount** : **10.354.576.201,85 TL (2.537.450.977,97 €)**
- **Appointed Company** : **Çanakkale Otoyol Yatırım ve İşletme A.Ş. (ÇOK A.Ş.)**
- **EPC Contractor** : **Daelim – Limak – SK - Yapı Merkezi J.V**
- **Consultant Firm** : **Tekfen Mühendislik A.Ş. – T Engineering International SA J.V**





1. Introduction

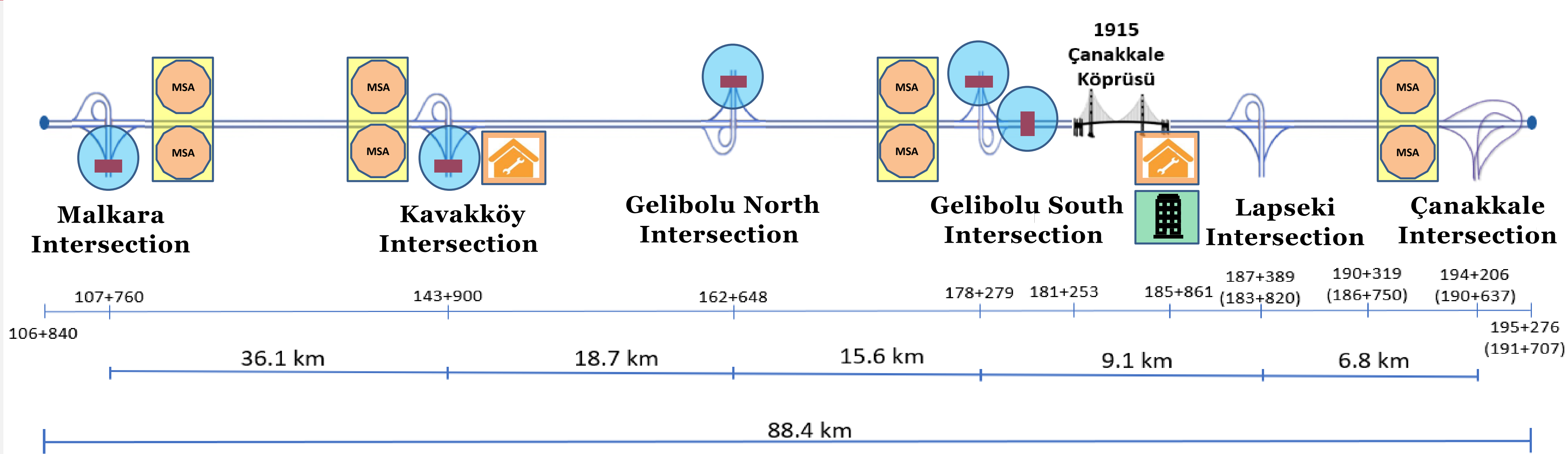
1.1. Brief Overview

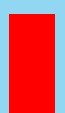






1. Introduction


1.1. Brief Overview



 Toll Collection

 O&M Center

 Motorway Service Area

 Main Control Center



The Golden Necklace of the Dardanelles

1915 Çanakkale Bridge



1. Introduction

1.1. Brief Overview



No	Bridge Name	Open. Date	Picture	Country	Main Span (m)
1	1915 Çanakkale Bridge	2022		Türkiye 	2.023
2	Akashi Kaikyo Bridge	1998		Japan 	1.991
3	Yangsigang Yangtze River	2019		China 	1.700
4	Nansha Bridge	2019		China 	1.688
5	Xihoumen Bridge	2009		China 	1.650
6	Great Belt Bridge	1998		Denmark 	1.624
7	Osmangazi Bridge	2016		Türkiye 	1.550

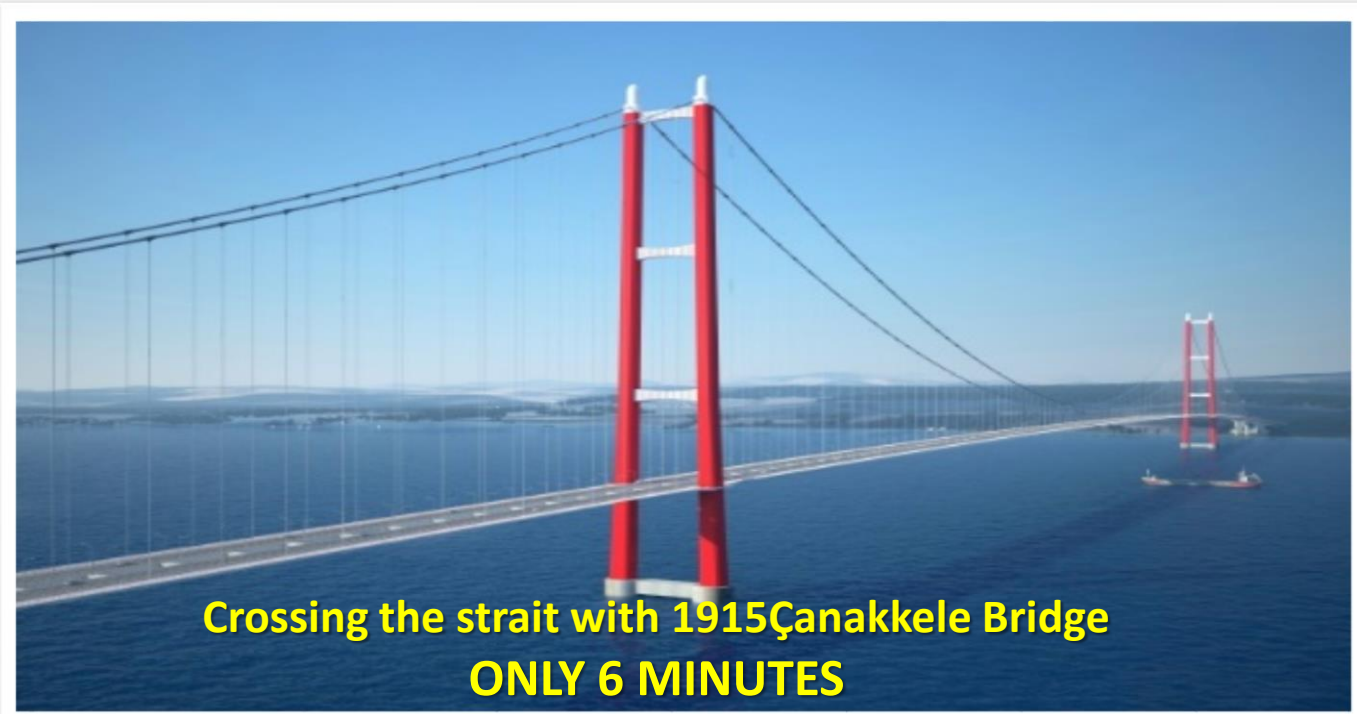


1. Introduction

1.1. Brief Overview

BEFORE - Crossing the Canakkale Strait with Ferry: Asia to Europe – 1.5 to 5 hours,
(Especially during Summer and National Holidays)

AFTER – Crossing the Canakkale Strait with 1915Canakkale Bridge – 6 minutes

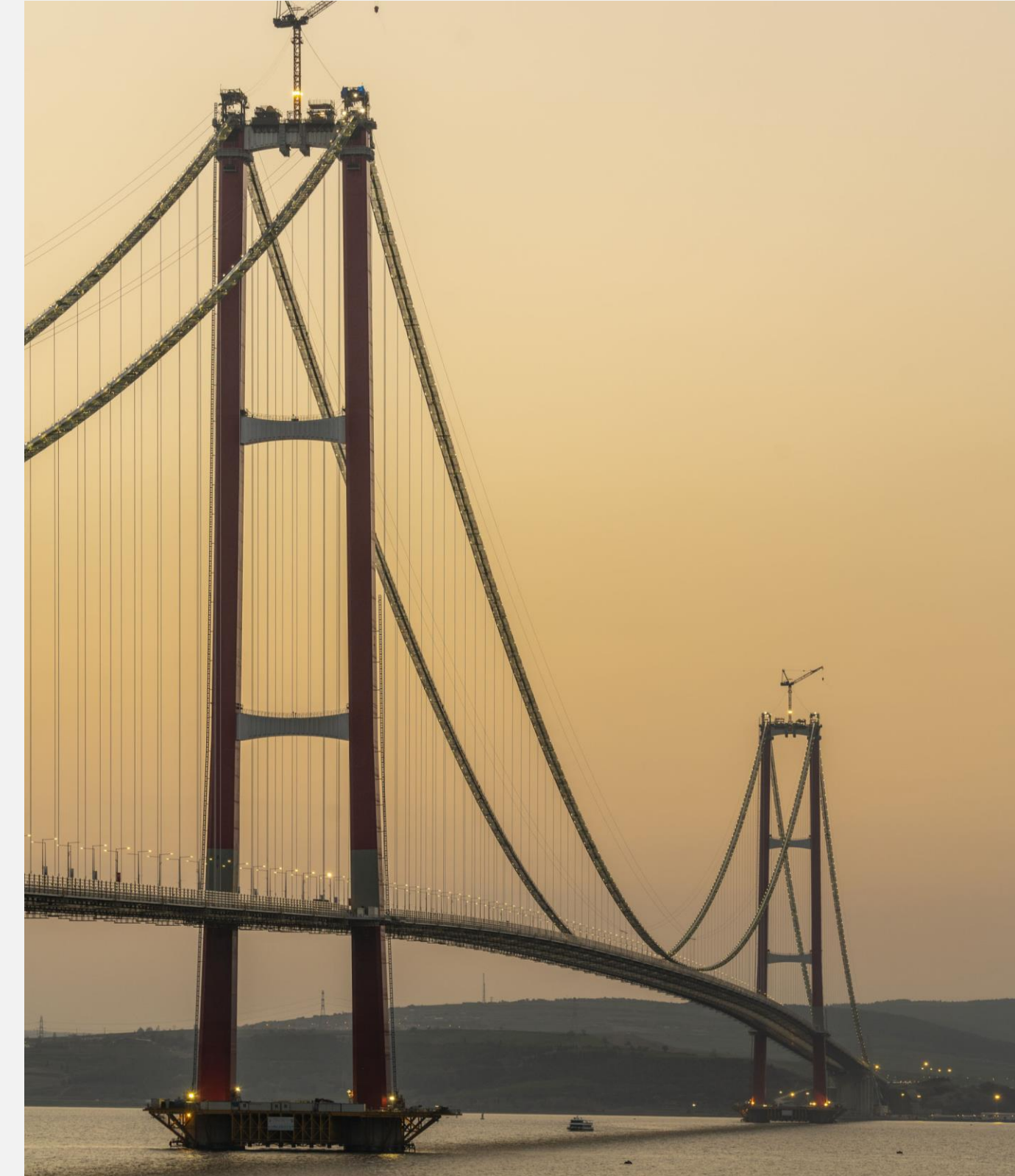




1. Introduction

1.2. Importance of Assessing Environmental Impacts

1. Sustainable Development
2. Legal and Regulatory Compliance
3. Informed Decision-Making
4. Stakeholder Engagement and Public Consultation
5. Minimizing Negative Environmental Impacts
6. Enhancing Positive Outcomes





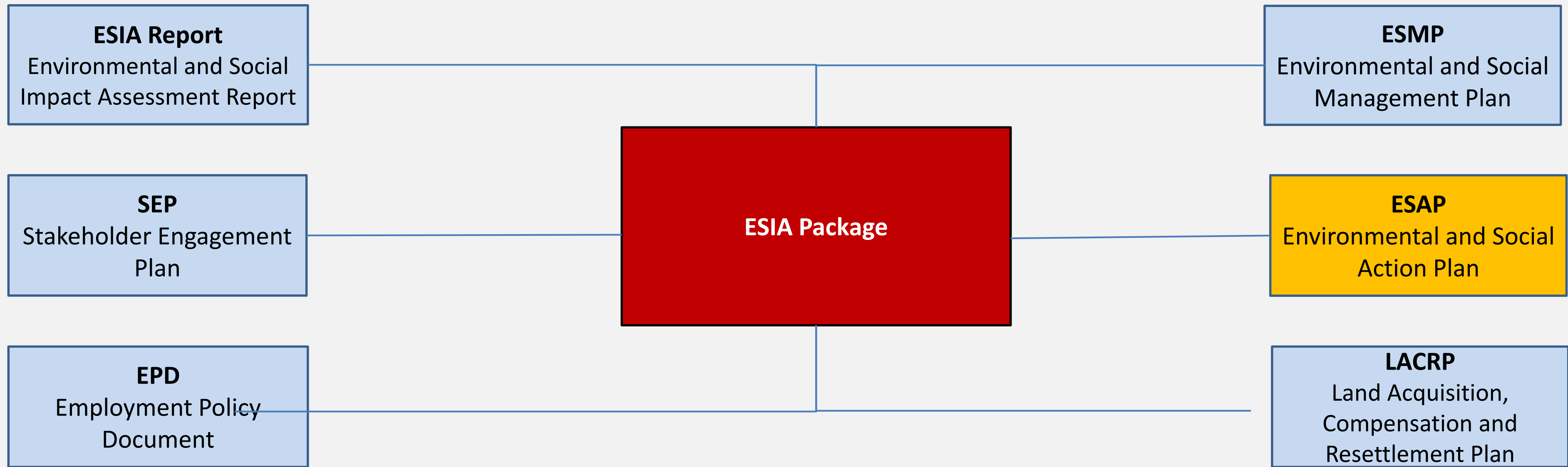
2. Methodology

2.1. Overview of Methods and Tools Used



The Project developed six main Environmental and Social (E&S) Documents which covers the all environmental and social requirements and commitments.

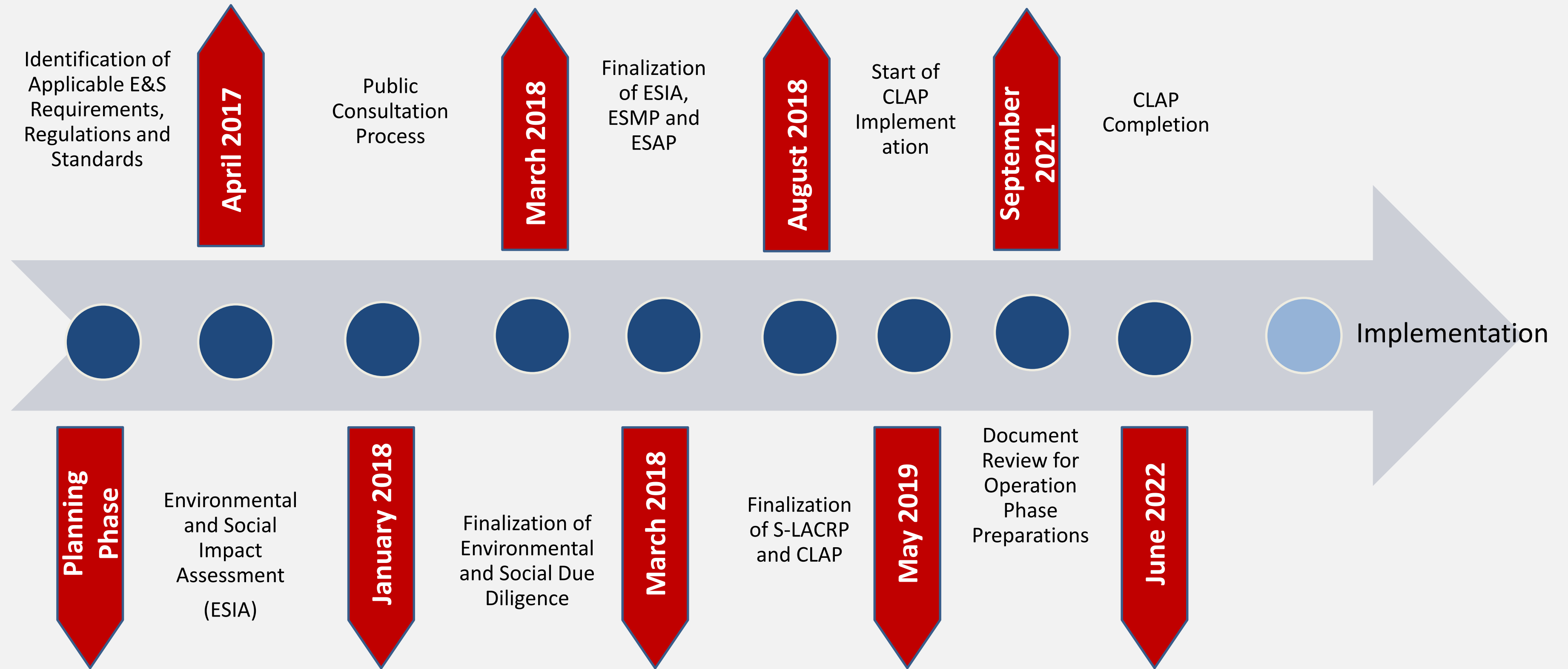
Environmental and Social Action Plan (ESAP) is the key document that being prepared in accordance with international standards and contains all environmental and social requirements of the Project.





2. Methodology

2.1. Overview of Methods and Tools Used





2. Methodology

2.2. Data Collection and Analysis



Studies Conducted to Assess the Impacts

- Air Quality Measurements and Modelling Studies
- Noise Measurements and Modelling Studies
- Water Quality Analyses
- Biodiversity Field Studies
- Bird Observation Studies
- Assessment of Greenhouse Gas Emissions
- Socio-economic Field Studies, Interviews
- Identification of Community Needs (CLAP - Community Level Assistance Programme)
- Identification of Cultural Heritage Assets (Field observations, archaeological studies)





2. Methodology

2.3. Stakeholder Involvement and Consultation

- 30-day public consultation period during ESIA preparation stage
- Posters, brochures, newspaper advertisements
- 7 ESIA information meetings attended by more than 1,000 people
- Feedback from more than 10 organizations
- Expropriation information guide
- More than 2,400 meetings with stakeholders since the beginning of the Project





3. Impacts and Mitigation Measures

3.1. Direct Impacts - Biodiversity

1. Marine Mammal Observation During Marine Piling Works



2. *Pinna nobilis* Transplantation





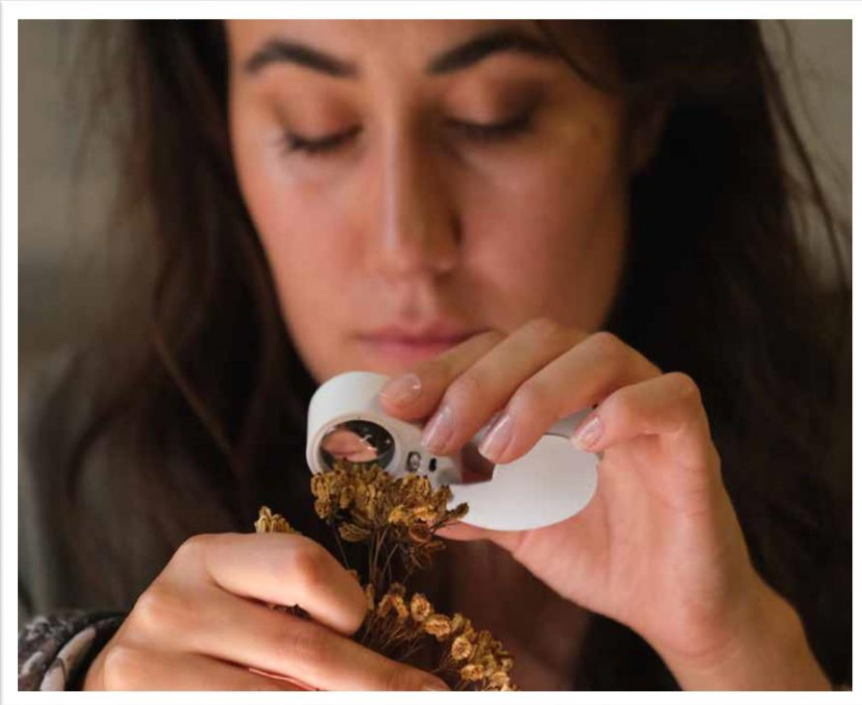
3. Impacts and Mitigation Measures

3.1. Direct Impacts - Biodiversity

3. Ecological bridge construction for habitat continuation



4. Seed collection activities





3. Impacts and Mitigation Measures

3.1. Direct Impacts - Biodiversity



5. Reforestation Activities

- The Project is committed to plant five trees per each affected tree
- Around 1,000,000 trees were planted within the scope of landscaping and reforestation activities
- Plantation success at reforestation sites are being monitored on quarterly basis





3. Impacts and Mitigation Measures

3.1. Direct Impacts - Water Resources and Quality

In the construction phase, surface and groundwater quality measurements were performed.

Water quality impact monitoring in the operation phase:

- Surface water quality monitoring at running rivers (eight locations)
- Marine water quality (two locations)
- Drainage channel discharge water quality (17 locations)

Operational Spillage Risk Assessment study

- The Project divided into sections according to the drainage channel catchment basins
- Spillage risk from Dangerous Goods Vehicles (DGVs) assessed for each section





3. Impacts and Mitigation Measures

3.1. Direct Impacts – Air Quality and Noise

- In the construction phase, Project's air quality impact was limited with dust. Quarterly measurements were performed on determined locations.
- In the operation phase, no significant direct impacts on air quality.
- Greenhouse gas (GHG) emissions calculated and reported annually.
- Periodic noise measurements have been performed at sensitive receptors.
- Noise Modeling Study was performed to anticipate operation phase noise level increase at nearest settlements due to traffic. As a results, a 900-m length and 3 m height noise barrier was installed at KM 127.





3. Impacts and Mitigation Measures

3.1. Direct Impacts – Soil and Geology

- Project ecologist supported the earthworks team to minimize the impacts on soil environment. Material usage amounts are recorded and monitored.
- In addition to the already suitable material, 8.262.618 m³ of excess excavation material made suitable for refill after applying Lime Stabilization.
- Operation phase impacts on soil and geology is limited with potential spills/leaks and these risks are being managed by spill response plans detailing the contingency measures.





3. Impacts and Mitigation Measures

3.1. Direct Impacts – Social Impacts

- Direct social impacts are majorly related with the land acquisition, expropriation, and regular construction and operation activities.
- A Grievance Mechanism and a Project hotline have been developed and implemented.
- 495 grievances were collected from the community and 95% were closed within 30 days.
- Around 2,400 consultation meetings were conducted.





3. Impacts and Mitigation Measures

3.1. Direct Impacts – Social Impacts

To support Project area, a Community Level Assistance Programme was developed and implemented.

Aim is to increase the income and improve the welfare of the affected settlements.

- **321 Projects for 32 settlements** has been determined. Implementation was completed as of July 2022.
- Monitoring period has started in April 2022 and will continue until December 2023.





3. Impacts and Mitigation Measures

3.2. Indirect Impacts-Reduction of Greenhouse Gas (GHG) emissions



- The Project review its opportunities to contribute to the Türkiye's climate change policy and commitments for delivering Paris Climate Agreement.
- Illumination with LED luminaire usage on entire route.
- 50% less energy consumption → less emissions
- Solar panels are used at nine locations to supply energy for cameras, VMSs, flashers, meteorological station, etc.
- Project's energy and material consumption rates are being monitored, and annual targets are set to ensure reduced consumption.





3. Impacts and Mitigation Measures

3.3. Benefits– Economic Development and Urbanization

Economic development and urbanization impacts are generally determined as positive impacts:

- Reducing the loss of life and property caused by traffic accidents
- Connecting Istanbul to Çanakkale and then to the North Aegean Region
- Providing transport integration in the Marmara and Aegean Regions as a motorway
- Significant contribution to the development of industry and tourism
- Shorter journey distances and an increase in the average speed, providing a comfortable ride
- Eliminating the economic losses caused by the increase in vehicle operating expenses
- Minimizing environmental factors such as traffic congestion, emission increases and noise pollution





4. Lessons Learned and Best Practices

4.1. Challenges Faced



1. Differences between Turkish Expropriation Law and international requirements

- International requirements and Turkish Expropriation Law stipulations differ from each other.
- International auditors have limited knowledge on Turkish Expropriation Law and therefore, requested many supporting documents and additional studies to ensure IFC standards are satisfied.
- Although there are no significant issues on this matter, time and money consuming tasks were performed.

2. Transition from construction to operation

- Although KGM's technical specifications define clear standards to ensure smooth transition from construction to operation, Project's ESIA didn't comprehensively define operation phase measures.
- A set of new management plans and procedures were prepared to define operational environmental and social mitigation measures.
- KGM spent efforts for safe transition in terms of ensuring traffic safety, as well as environmental and social standards.
- Again, there are no problems on this issue, but time and money consuming tasks were performed





4. Lessons Learned and Best Practices

4.2. Key Success Factors and Best Practices

- 1. Early Integration of EIA and ESIA in Project Planning**
- 2. Multidisciplinary Team of Experts**
- 3. Stakeholder Engagement and Public Consultation**
- 4. Close Supervision**
- 5. Openness to Challenges**



4. Lessons Learned and Best Practices

4.3. Recommendations for Future Transport Infrastructure Projects

- 1. Initiating ESIA Studies at the Design Stage**
- 2. Comprehensive Baseline Studies (e.g. measurements, analyses, field visits, etc.)**
- 3. Set-up of a Strong Management System (i.e. Environmental and Social Management System - ESMS)**
- 4. Close and Transparent Relationship with the Local Community Members**



5. Conclusion



Importance of Robust EIA and ESIA

- Ensures sustainable development by balancing economic growth, social development, and environmental protection

Reflection on the 1915 Çanakkale Bridge and Motorway Project

- Successful application of EIA and ESIA methodologies
- Effective mitigation and management measures to address environmental impacts
- Strong monitoring plans to identify any slips, and resolution with strong ESMS

Lessons Learned and Best Practices

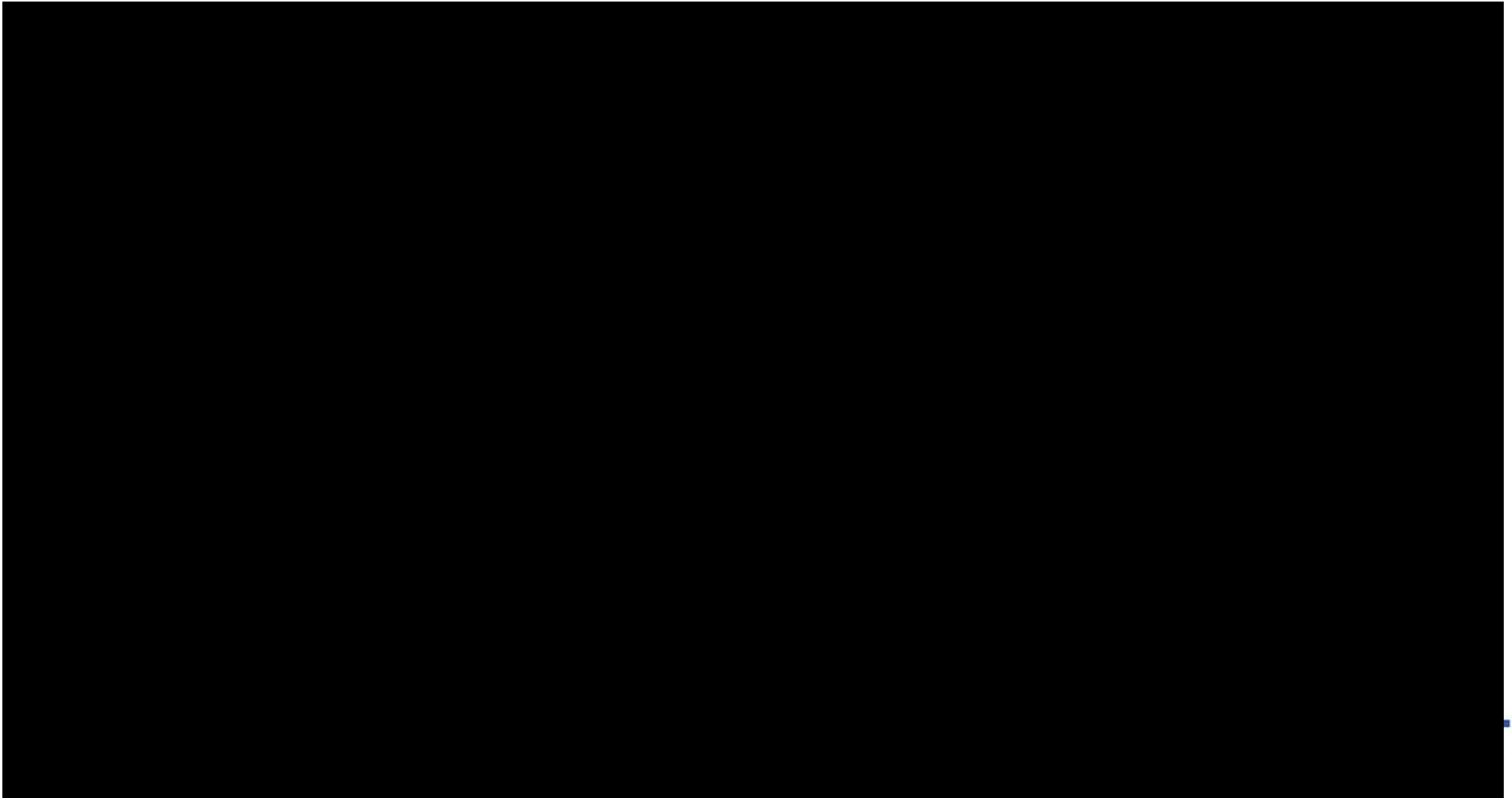
- Early integration of EIA and ESIA in project planning
- Stakeholder engagement and public consultation
- Adaptive management and collaboration with regulatory authorities

Implications for Future Transport Infrastructure Projects

- Enhancing the environmental performance of projects through continuous improvement
- Informed decision-making to minimize negative impacts and promote sustainable transportation









Thank You

Erdoğan DEDEOĞLU
Deputy Division Director