

# "RESEARCH, INVESTIGATION AND MONITORING OF VARIOUS LANDSLIDES IN BEYLİKDÜZÜ AND BÜYÜKÇEKMECE DISTRICTS" PROJECT

## 1. Introduction

Metropolitan Municipality Law numbered 5216, which was published in the official newspaper and entered into force in 2004. With the implementation of the Law, the jurisdiction of the Istanbul Metropolitan Municipality has expanded to the whole Istanbul Province. Beylikdüzü and Büyükçekmece districts are also subject to this law. It is one of the districts that have participated in the IMM area of responsibility since 2005. Even though the areas of the districts have different ground hazards, these districts were gone under pressure from a heavily demanding construction depending on its position, social and economical development in recent years and the districts were expanded to these areas. In order to shed light on the development plan work and to respond to the demands of the construction, several placement compliance studies have been done in the working areas both by citizens and by the municipalities of the District in the beginning of 2000's. However, it is considered that these studies are not holistic to cover all problematic sites, and data is not sufficient in terms of variety and resolution for zoning plan studies in terms of suitability for settlement. It is adopted that it is a need for a holistic investigation to cover the entire area to determine the types and causes of the slope movements that threaten the settlement and construction of the work site and this study need to cover also assessment and improvement of the recommendations based on this study. In this context, İstanbul Metropolitan Municipality, Earthquake and Ground Investigation Directorate (İBB DEZİM) and Turkey Scientific and Technological Research Institute, Marmara Research Center (TÜBİTAK MAM) entered into force on March 03, 2013 by signing the protocol "Research, Review and Monitoring of Various Landslides in Beylikdüzü and Büyükçekmece Districts" Works, obtained data and evaluations are created in the project carried out within the scope of the service procurement protocol, presented within the scope of this report.

### 1.1 The Aim of the Project

The purpose of the project is to determine the movements, the sliding surfaces, the depth of the slip, dimensions and mechanisms of the landslides in the project site given in the figure 1.1. The base outputs produced by this study include the most current results on the boundaries, mechanisms and influenced areas of landslides, and are intended to be the main source for planning activities on the project site.

### 1.2 Scope of the Project

The studies carried out within the scope of the project is determined with the cooperation between IMM DEZİM and TÜBİTAK MAM YDBE. The investigation and monitoring of landslides in the research areas are carried out by using methods from different disciplines such as geological, geophysics, geodetic and meteorological. In this context, all findings obtained by various methods of different disciplines are evaluated with a holistic approach. Reports of previous research and base maps of various scales related to the work covered by the project were transferred by the İBB DEZİM to TÜBİTAK MAM YDBE. In addition, the geological, geophysical and geomorphological studies carried out before 2014 concerning the region and the researches between Çekmece lakes were reviewed.

### **1.3 Project Area**

General location of the project area is located in 381602 and 387245 longitude, 4537035 and 4544826 latitude in 3 degree Universal Transverse Mercator (UTM) projection system; also are located between the longitude of 28.595°E and 28.645°E and the latitude of 40.960°K and 41.025°K in the WGS projection system. Project site is confined between the D100 highways in the North, Marmara Sea in the South, the Kavakli stream in the East and the Bay of Buyukcekmece in the West. Boundaries of landslide areas planned to be investigated in detail within the scope of the protocol (green areas) are given in the figure 1.1. These green areas in the project area are determined by both the boundaries of the active or potential landslide areas drawn by İBB DEZİM as well as the boundaries of areas which has landslide and stability problems based on zoning plans in 1/1.000 and/or 1/2.000 scaled Suitability for Settlement maps prepared by relevant district municipalities and approved by authorized institutions in previous years (Fig. 1.2). Apart from these, the surroundings of the determined research areas are also included in the scope of the studies in order to ensure the integrity of the research.