



First Lessons from Norway on Climate Change Adaptation

Study trip to Oslo (22 – 25 March 2022)

Representatives of the partners under project "Implementation of innovative measures for climate change mitigation and adaptation measures in municipalities in the Republic of Bulgaria" under the Environmental Protection and Climate Change Program of the European Economic Area (EEA) **paid a visit to Oslo within the period 22-25 March 2022**. The delegation included deputy mayors and project coordinators from the partner municipalities, as well as representatives of NTEF and of the advisory team.

The Norwegian **Association of Local and Regional authorities (KS)** was host and organizer of the program in Oslo.

The purpose of the visit was on-site familiarization with the work of the municipalities in Norway in the climate change adaptation field, as well as with concrete projects, which had been implemented or were currently being executed.

In the Norwegian Association of Local and Regional Authorities (KS), the visitors received information on the management principles, applied by the local authorities in Norway, their role in the climate action and in particular in the adaptation field. The participants asked many questions, the answers to which helped them understand the similarities and differences of the local self-government in Norway and in Bulgaria. The leader of the session was Mr. Christian Larsen - project coordinator on the part of the Norwegian partner.

A visit to **Bærum municipality** followed, where the climate change adaptation coordinator arch. Pedro Ardila presented the strategic municipal framework for climate change adaptation, and then personally led the participants to the sites, where a project for opening of Sandvika River in the city was implemented in stages. Years ago, it was "closed" under the ground to build on top of it streets and parking lots, and now, when the water basins levels rise and the torrential rains become more frequent, the river "reopens" and its bed is shaped in such a way as to absorb large water volumes in the event of a flood and to avoid endangering of the security of the surrounding infrastructure – i.e. streets and buildings. In the area, where the river flows into the fjord, the coastal territory is shaped as Kadetttangen fjord park with not big artificial hills, acting as dykes in the event of increased water basins' levels.

The next group stop was in the recently created **Nansen Park (in the name of Fridtjof Nansen) in Fornebu** (in the area where the former main airport of Oslo was located until 1998).

The park is now ready and all necessary measures for adaptation to high waters and torrential rains have been implemented in it. Different water management approaches have been applied to create a favorable environment for recreation, simultaneously providing measures for "absorbing" large water quantities when required.

Residential buildings are built in the park periphery at present, which are planned and constructed on the elevated terrains, so as not to be affected by the rising levels in the water basins of the park and to ensure the rapid flow of the water downwards to these basins in cases of torrential rains. The principles of the circular economy are applied to the construction of the residential buildings. When excavation works are carried out, the entire material volume is processed and separated on the site to utilize all fractions during the construction and to avoid removal and return of large soil and stone masses. In the area, which surrounds the ditches, temporary dykes are built to reduce the noise pollution for the residents in the neighborhood and for the park visitors.





The delegation was also accepted by the **Deputy Mayor of Oslo Municipality Abdullah Alsabeeh**, who briefed the participants on the city's history in the City Hall, where the Nobel Peace Prizes are awarded.

The main strategic documents of the municipality in the environmental field, climate action and water management were then presented. The management system of Oslo City was presented by Mrs. Mari Nilsen (Office of the Governing Mayor), while the specific plans and climate action management principles were presented by experts of the Agency for Planning and Building Services and of the Climate Agency (divisions of the municipality).

They were also the hosts of the "walk and talk" – showcasing the City of Oslo's flood management system and reopening of rivers. The participants witnessed the **construction works for opening of rivers**, the building of a system of sites, aimed at absorbing large water quantities in the events of flood. They were also shown the so called "**rain gardens**", where the water from the torrential rains is drained in the green areas of the streets and discharged into watercourses around which park areas, sports grounds, etc. are built. The Norwegian partners shared with the participants even unsuccessful attempts to build "stormwater beds", for which it was established that failure to take into account details while designing the slope (within only a 5% range) had predicted the failure of the endeavor.

All participants were extremely active during the meetings and the on-site visits and received very detailed answers to their questions. They shared **their satisfaction with the study trip**, thanked for the provided materials and publications and indicated that the **experience, which they had become familiarized with**, will be used in the designing of the investment measures under the project.

