

IAF EARTH OBSERVATION SYMPOSIUM (B1)
Interactive Presentations - IAF EARTH OBSERVATION SYMPOSIUM (IP)

Author: Dr. Shahnaz Amanova
Khazar University, Azerbaijan

ASSESSMENT OF ECOLOGICAL SITUATION AND DEVELOPMENT OF THE URBAN
LANDSCAPES BASED ON GIS (ON THE EXAMPLE OF IMISHLY)

Abstract

Cities are major sources of carbon dioxide, nitrogen oxides and other toxic gases. Strong development of transport and industry is a major factor in the deterioration of the environmental situation in the city and surrounding areas. We have analyzed the current situation of the city of Imishly, located in the central arid area of the Republic of Azerbaijan - Mil plain, on the basis of modern technologies and have studied the previous situation on the basis of funds and literature, then have compared all the results. Our research area covers the city of Imishly and the surrounding area, located in the Mil plain on the banks of the Araz River. In order to study the area, both the city area and the area of the buffer zone at a distance of 5 km from the city were studied. The area of the city to be developed in 2022 is 22 sq.km, and the buffer zone covers 213 sq.km. The factors affecting the environment in the city have been comprehensively analyzed. Density of constructions, population dynamics, the relationship between population growth and area expansion, the dynamics of vegetation cover, the impact of industrial and agricultural enterprises, transport on the atmosphere, hydrosphere and biosphere were studied. We have investigated the modern and previous condition of the Imishly city based on Landsat 5 and 8 images, Google Earth images. Based on the satellite images the construction of legal and illegal condition and construction indexes have been analyzed by us. For comprehensive analysis we have chosen buffer zone around urban landscape, compared the centerpiece of city to buffer zone. After comparing modern and previous condition we forecasted the future plan of city. According to the dynamics of 1989-2022, we see that most of the vacant land was appropriated by the population in 2022 and turned into construction and arable land. Based on satellite images we have determined that there were an unnamed oxbow lake (0,25 sq.km) in the southern-eastern part of the city in 2010, the lake dried up and became a residential area. We have investigated population dynamics of urban landscape based on statistics. The expansion of the city's territory has led to a reduction in pastures and arable land. The construction of individual houses has led to the expansion of gardens and fields in the backyards. The city's territory has almost doubled in the last 47 years.