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Environmental policy in the north-eastern sector of the Black sea coast

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Active economic development of the Black Sea East coastal zone has started in the beginning of 20-th century. Those days the pebble taken from beaches was used for construction of buildings, rail and motor roads. Active consumption of pebble from the beaches and river banks had caused a sharp increase of sea shores abrasion and washout rate, number of landslides had also increased.

Contemporary Caucasian shores of Black Sea are being developed under increasing man-caused load. Favorable natural conditions, their variety and uniqueness determine the exceptional role of these shores as very important recreational zone of Russian South. Waste urbanized areas, agricultural territories and National Parks are located in immediate neighborhood with the sea. Important industrial facilities and federal and international communications, including major seaports are located in the shore zone. At present time major gas and oil transportation facilities are commissioned and being constructed in the area.

Due to the change of geopolitical situation the Russian shoreline had significantly reduced in comparison with Soviet period, especially in most developed regions. Large resort complexes in Georgia, Crimea and Baltic area were lost. Russia had also lost many major seaports that, under conditions of structural change of economy and export growth, had caused the necessity of building new industrial facilities in the Black Sea coastal zone, and, consequently, had stimulated active human invasion into natural coastal processes.

At the time being, a major part (three hundred nine kilometers) of Black Sea coast within Russian sector is subject to abrasion and landslide processes. Abrasion process and beaches wash-out, landslides cause destruction of industrial and transport facilities, living and public buildings, resort complexes and valuable agricultural areas. In this light, the challenge of estimation of effective methods of shores protection against wave-induced erosion becomes crucial.

For a long period of time the coast protective activity was concentrated on elimination of localized zones of washout, without consideration of lithodynamic system in which the protected area is located, that led to disturbance of sediments flows, and, consequently, to acceleration of abrasion on the related parts of the shore. Main technical solutions regarding coast protection constructions for creation of artificial beaches, are borrowed from the experience of coast protection (construction of bunas, breakwaters and wave walls) at Caucasus and Crimean shores of the Black Sea. Application of bunas and breakwaters is formally divided by the steepness of the underwater slope equal to 0.03. However, this division did not and does not have any physical grounds and is not confirmed by materials of study of surf zone's hydro- and lithodynamics. Types of constructions and their composition in the coastal protective complexes were assigned subjectively.

Because of general deficit of the sediments, the free beaches with big length were difficult to create. It was necessary to build the sediment retaining constructions like bunas, on the landslide sections – underwater breakwaters. Thus, the beaches in the coast protective complexes were having a primary role, and the constructions - secondary.