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## COASTAL INDIGENOUS COMMUNITIES' PROBLEMS ASSOCIATED WITH PERMAFROST CHANGES IN EASTERN CHUKOTKA

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Eastern Chukotka is a region populated mostly by indigenous people's representatives: Chukchee and Eskimos. During Soviet Union their communities had been getting consolidated into settlements with timber and stone houses, somewhere with central water supply and sewerage. The settlements considered in the study are Inchoun, Neshkan and Uelen, situated on the Chuckhi Sea coast; Lorino and Lavrentiya situated on the Bering Sea coast. «New» facilities in them been weakly adapted to exploitation on permafrost and had been having negative, but non-critical impact on frozen grounds. Since 1990s socio-economical situation has changed, and consumer service of engineering systems has deteriorated. This had lead to building deformations, geotechnical risk increasing and intensification of negative cryogenic processes.

The study methods included geophysics, thermal modeling, field geodetic surveys, using archival topographic maps, data of permafrost engineering surveys, modern space high resolution imagery, etc.

Majority of living houses in Eastern Chukotka built before 1990 has deformations, following numerous cracks in walls and floors. Frequent fresh water leakages form swampy areas, which often leads to thermoerosional ravines formation. Study revealed existence of technogenic taliks under old living houses. Built-up areas of studied settlements have changed permafrost conditions that can be dangerous for further exploitation and development.

The communities of Chuckhi peninsula are experiencing sea impact to a different degree, because they confined to the shores of the Bering and Chukchi seas, as the general population depends on the production of marine mammals. The information about many settlements of the region known since XVI-XVIII centuries that allows indirectly judge about relative stability of coast sections, on which they are located. However, the comprehensive analysis has revealed the fact of retreat in recent years coastal sections located within some communities. Some engineering facilities, situated near the sea either has been destroyed or under threat of destruction.

The studied problem may have more acute way in the future. Thus, forecast of cryogenic processes development and key recommendations for mitigation and adaptation to changing permafrost conditions has been made.

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