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Procedures for estimating the fields' and gardens' surfaces in Pre-Sargonic documentation from Girsu

Abstract - The Pre-Sargonic documentation from Girsu sheds some light on the mathematical procedures applied by land surveyors in order to estimate the fields' and gardens' surfaces. Approximately fifteen administrative tablets refer indeed to the length, width and surfaces of several fields, which are all superior to one iku (0,36 ha). On the other hand, a couple of texts also give the length, width and surface of gardens or small surfaces calculated in sar units. Both kinds of tablets enable us therefore to reconstruct the relationships between length and surface units, as well as to identify the bridge used by surveyors to shift from the former to the latter. They also show that surveyors used several kinds of rounding and approximations, probably in order to reduce the margin of error. The aim of the paper is first to focus on the methods of the Sumerian land-surveyors to estimate surface in administrative contexts, especially to compare the calculation of large and small surfaces. Furthermore, the fresh review of the use of length units, especially the gi and the ninda-DU, such as they occur in the administrative documentation, can also show which specific unit was considered to be a basic unit.