

**Skowronek-Gradziel, A., Kolwzan, W., Dziubek, A.M. Multivariate Statistical Analysis of Development in Water Supply and Sanitation in Rural Areas in Poland in the Period 2000–2012. *Ochrona Srodowiska* 2014, Vol. 36, No. 4, pp. 61–68.**

**Abstract:** A research hypothesis was formulated that since the beginning of the 21<sup>st</sup> century a systematic progress had been made in technical infrastructure serving water supply and sanitation of rural areas in Poland. Concurrently, it was assumed that multivariate methods of statistical analysis could help achieve the set goal. The analysis of 25 variables from the years 2000, 2003, 2005 and 2012 allowed for the estimation of their arithmetic means, variances, standard deviations and coefficients of variation. In terms of water supply and sewerage systems, the statistical analysis demonstrated a steady development of indicators for technical infrastructure in rural areas in Poland. Thus, awareness in respect of the need for water supply protection clearly increases. The above conclusion is supported by the means in the Hellwig's method (linear trend) in relation to the central variables. The combine value of the latter, calculated for the eight sets of variables, increased from 61 in the initial period (year 2000) to 67 in the most recent study period (2012). The results received provide the decisionmakers with extensive quantitative and qualitative knowledge, essential for taking decisions at the national level. In addition, they allow for comprehensive approach and on-going evaluation of the situation with regard to water supply as well as sewage disposal and waste management in any given area. This is strictly connected with currently understood fundamental functions of management with regard to decision-making at the central level (*e.g.* by the Ministry of the Environment).

**Keywords:** Water supply system, sewerage system, landfill, multivariate analysis, ANOVA, Hellwig's method, correlation analysis.