

Abstract

How effective a university is in its sustainable development depends crucially on its students and employees. The European EMAS certification requires independent continuous improvements in all spheres of environmental management, and accordingly in spatial mobility of university members. The analyses of progress in the field of spatial mobility of its members have been missing in the environmental reports of the universities participating in EMAS. The present work aims to examine with various empirical approaches the spatial mobility of students and employees at the Cologne University of Applied Sciences as an example, further to develop an appropriate tool to quantify this phenomenon and to suggest measures to improve the environmental impact of the university. To provide an overview of the statistical population at the Cologne University of Applied Sciences inventory data were analyzed using various statistical methods. The premium statistical data on mobility behavior of the university members were gained in an ILIAS-based online survey, and the aspects relevant for the members' choice of transportation were identified. However, statistical data alone are not enough. Therefore, in this work the very efficient geographic information systems (GIS) for analytical modeling of spatial mobility and "network analyst" extension were used apart from the spatial information. The present study has shown that the coupling of components for spatial data processing and modeling could be implemented for decision support, and that the GIS model for the calculation of distances between home and study location can be used in the environmental management of the University of Applied Sciences in Cologne, as well as for scientific applications. Finally, the work names possible measures for the environmental management of the Cologne University of Applied Sciences aimed to improve the environmental impact of the university in the spatial mobility sector. The methods for analysis of spatial mobility of the university members developed in this study and the proposed measures to reduce the environmental impact caused by spatial mobility of the members, can be easily transferred to other universities and organizations.