

Developing tools for the integration of mining with other land uses

M. KIVINEN¹, M. MARKOVAARA-KOIVISTO^{1*}, P. EILU¹

¹*Geological Survey of Finland, P.O. Box 96, FI-02151 Espoo, FINLAND (*correspondence: mira.markovaara-koivisto@gtk.fi)*

Increase in mining and mineral exploration activities has created challenges in land-use planning. In our research, we provide spatial tools to improve the proactivity in decision making and strengthen the prerequisites for companies in gaining a social license to operate.

One of the tools is the "Mining Potential Tool" which interlinks spatial and temporal information to provide an estimate of the possible future mining activities and related time-scales in a studied area. This tool consist of map layers that are constructed by analysing the following data: 1) mineral exploration activities (e.g., TUKES 2015), 2) mineral deposit data (e.g., FODD 2015), and 3) mineral prospectivity mapping (e.g., Nykänen et al. 2008). The map layers are intended to give the municipal authorities and citizens a spatial information about the time-scales and uncertainties related to mineral exploration and mine projects. The layers can also be used in analysing overlap with other land-use types and locating the potential future conflicts of interests.

This research is part of the joint project GovAda between the University of Lappland, Geological Survey of Finland and Natural Resources Institute Finland funded by the Academy of Finland. It brings together researchers with different backgrounds and expertise with an aim to gain deeper understanding over the land-use planning problematics. The GovAda project will provide a variety of tools for proactive planning and strengthen the possibilities of the decision makers to better prepare for the changing societal environment.

References:

- FODD 2015. The Fennoscandian Ore Deposit Database. <http://gtkdata.gtk.fi/fmd/>
Nykänen et al. 2008. Combined conceptual/empirical prospectivity mapping for orogenic gold in the northern Fennoscandian shield. *Australian Journal of Earth Sciences* 55 (1), 39-59.
TUKES 2015. The Mining Register Map Service.
<http://www.tukes.fi/en/Branches/Mining/Map-files/>