## Lessons Learned from Interlaboratory Noise Modelling in Scope of **Environmental Impact Assessments in Slovenia**

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Abstract : Noise assessment methods are regularly used in scope of Environmental Impact Assessments for planned projects to assess (predict) the expected noise emissions of these projects. Different noise assessment methods could be used. In recent years, we had an opportunity to collaborate in some noise assessment procedures where noise assessments of different laboratories have been performed simultaneously. We identified some significant differences in noise assessment results between laboratories in Slovenia. We estimate that despite good input Georeferenced Data to set up acoustic model exists in Slovenia; there is no clear consensus on methods for predictive noise methods for planned projects. We analyzed input data, methods and results of predictive noise methods for two planned industrial projects, both were done independently by two laboratories. We also analyzed the data, methods and results of two interlaboratory collaborative noise models for two existing noise sources (railway and motorway). In cases of predictive noise modelling, the validations of acoustic models were performed by noise measurements of surrounding existing noise sources, but in varving durations. The acoustic characteristics of existing buildings were also not described identically. The planned noise sources were described and digitized differently. Differences in noise assessment results between different laboratories have ranged up to 10 dBA, which considerably exceeds the acceptable uncertainty ranged between 3 to 6 dBA. Contrary to predictive noise modelling, in cases of collaborative noise modelling for two existing noise sources the possibility to perform the validation noise measurements of existing noise sources greatly increased the comparability of noise modelling results. In both cases of collaborative noise modelling for existing motorway and railway, the modelling results of different laboratories were comparable. Differences in noise modeling results between different laboratories were below 5 dBA, which was acceptable uncertainty set up by interlaboratory noise modelling organizer. The lessons learned from the study were: 1) Predictive noise calculation using formulae from International standard SIST ISO 9613-2: 1997 is not an appropriate method to predict noise emissions of planned projects since due to complexity of procedure they are not used strictly, 2) The noise measurements are important tools to minimize noise assessment errors of planned projects and should be in cases of predictive noise modelling performed at least for validation of acoustic model, 3) National guidelines should be made on the appropriate data, methods, noise source digitalization, validation of acoustic model etc. in order to unify the predictive noise models and their results in scope of Environmental Impact Assessments for planned projects.

Keywords : environmental noise assessment, predictive noise modelling, spatial planning, noise measurements, national quidelines

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