

Critical Review for Group 12

by Group 10¹

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Overall, the study on 'Railway Track and Track Bed Life Cycle Assessment' has delivered a robust result both in figures and report despite the limited duration. It shows that Group 12 have worked a tremendous effort on the LCA project. The critical review is being made to appreciate and notice several strong aspects as well as a room for improvement, which will be elaborated below.

At the beginning of the report, the clarity of study assumptions and study limitations have been delivered unquestionably adequate. Having this part explained has avoided the reader from dragging on wondering and guessing what and why a process or material is included or omitted.

The delivery of the processed involved is well explained. It guides the reader through the whole process as well as an adequate inquiry into the matter. What strikes the reader is that after reading several paragraphs of the process they have a basic illustration in each of their minds on how the rail track and rail bed is being assembled.

The use of figures has evidently done its job on making the elaboration clearer: the stretch way of the railway track; the side cut; and the detailed flow chart. Especially the detailed flow chart which has a proper balance between simplicity and complexity: it renders a simple flow of input and output while not undermining the complexity attributed to processes involved. A quick improvement on the source of the figure could be added in the figures referred from other sources.

Since the study assesses the lifetime of 50 years, it is worth mentioning in the report that the study also includes decommissioning of the rails and the other components e.g. ballast, concrete sleeper, fastening clip and rubber pad. It is also worth mentioning in the comment the reference unit that is being used such that it has considered the lifetime of 50 years. Adding this point would avoid reducing the uncertainty and unclarity on the reader's side as it shows that

the author has done it. Especially to those readers who are not well familiar with the infrastructure project.

The study leans mainly on the Bothnia line study done by Stripe and Uppenberg, which perhaps may contain differences to the Skutskar and Furuvik railway track. A more comprehensive report could be generated if the author would mention the uncertainties that arose contributed from the difference between the two projects. In this case, it does not have to be specific or precisely accurate, but several possible differences. This will show the reader that even though the author uses assumption from another similar project; the author understands and accept the known risk from the referenced study.

One last room of improvement could also be done in delivering the results figure. While the figure itself has shown the strong result of the study, the ease to read of the figures should also be maintained. A way to do this is perhaps post-processing the results on Microsoft Excel for better and representative figures. Also, while delivering the comparison between maintenance and construction, the author could specify several categories that are considered significant than others. More context and slightly deeper elaboration could be given to the selected categories.