

Interactive comment on “Revegetation in abandoned quarries with landfill stabilized waste and gravels: water dynamics and plant growth – a case study” by Cheng-liang Zhang et al.

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We are grateful for the helpful comments and the manuscript will be revised accordingly. A map of study area and more information on the physical conditions of the area will be added. We will also further the discussion on erosion of the fine particles.

The potential erosion of soil is very important. When the proportions of LSW is low, it is very likely to move down with the infiltration through the large pores between the gravels, leaving a layer of pure gravels which is difficult for plant growth. So LGM with a low proportion of LSW will be disadvantageous for plant growth at the beginning of revegetation, and it may be more disadvantageous over time.

However, we did not quantitatively measure the erosion of the fine particles. We could have measured the percentage of fine particles in the runoffs. Unfortunately, we didn't. We can neither sample LGM at different depths to measure the amounts of fine particles and find out how they move over time without disturbing the structure. The gravels are interlocked, so samples cannot be taken with a common cutting ring by human force, rather a large sample box must be made and pushed into the material mechanically, seriously disturbing the initial structure.

However, the physical properties of LSW is similar to natural soils. And the vertical movement of fine particles in LGM with low RL is similar to the underground erosion in karst areas, which has been well-studied. We will refer to these papers for further discussion.

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Discussion paper

