Table 1: Relations among the rheological and slump parameters of fine-sediment slurries

Relation model	Model coefficients (a, b)	Coefficient of determination R^2
$\tau_B = a + bH_r$	185.78, -187.18	0.97
$\tau_B = a + bD_r$	51.92, -9.8	0.96
$\mu_B = a + bH_r$	16.07, -16.58	0.99
$\mu_B = a + bD_r$	4.71, -1.05	0.85

5. Conclusions:

This study conducted rheological experiments and slump tests of sediment slurries that have Bingham fluid behaviour, to explore the correlation between the rheological parameters and slump parameters. Looking at the experimental results, we conclude:

1. The slurry-gravel mixtures and fine-sediment slurry mixtures at low shear rates (< 20 s^{-1}) exhibit the characteristics of Bingham fluid.
2. The rheological parameters (the yield stress and Bingham viscosity) are affected by the sediment concentration in the slurry as well as by sediment size distribution. The higher the concentration, the greater the value of rheological parameters.
3. With increasing the sediment concentration of the tested slurry using slump test, the values of slump height ratio and spreading diameter ratio are gradually decreasing. Under the same total concentration, the slurry mixed with coarse particles spread slower and shorter than fine sediment slurry.
4. Among the slump parameters, spreading of slump or slump diameter is more sensitive to rheology measurement.
5. The rheological parameters are well related with slump parameters, and this indicates that there is a high potential to evaluate rheological parameters of debris-flow using a slump test as an alternative method.

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