Climate change impacts on soil erosion across MAMMINASATA

Knowledge of climate change impact on soil erosion across the MAMMINASATA region, Indonesia, is now available to help decision makers and practitioners to plan and manage the catchments for the future.

Why we need to know?

The main sources of water for Makassar and MAMMINASATA regions are the Lekopancing weir at Maros and the Bili-Bili dam at Jeneberang rivers.

Both rivers are prone to high sedimentation due to soil erosion and/or landslide. The landslide, for instance, has helped to shorten the lifetime of the Bili-Bili dam by up to 20 years. Thus, there is a risk of lack of water supply in the future.

Climate, through extreme events such as heavy rainfall, is one of the dominant factors affecting soil erosion rates in a region.

Understanding how climate may change in the future, and how this change may affect soil erosion, will help decision makers and managers to plan ahead to better manage soil and water resources.

How do we investigate?

Scientists from Hasanuddin University, Makassar, have estimated the current and future soil erosion across the three rivers (Jeneberang, Maros and Tallo) in light of climate change scenarios (Achmad et al. 2010).

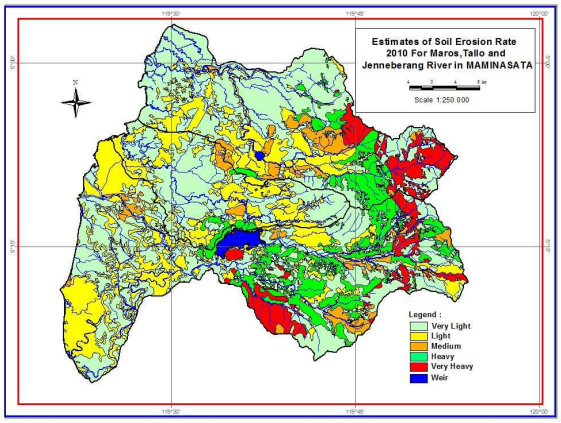
They applied a combination of the widely used Universal Soil Loss Equation (USLE), remote sensing techniques, and Geographical Information System (GIS) to estimate soil erosion in 2010.

For estimates of soil erosion by the 2030s, scientists considered the five future climate scenarios developed for the MAMMINASATA region (Kirono et al. 2010).

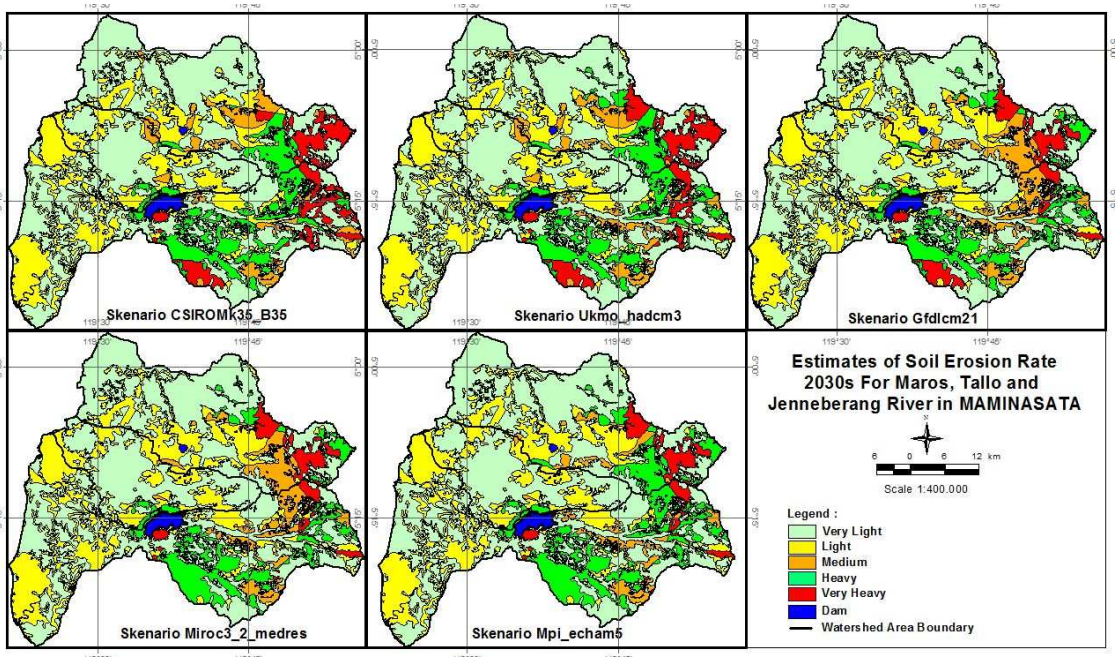
What the results tell us?

- The scenarios of climate change indicate that soil erosion will decrease overall. However, for most regions erosion will occur at a rate relatively similar to the present.
- This means that the current high turbidity of the raw water supply – due to high sedimentation induced by soil erosion over the MAMMINASATA region – is likely to persist in the future.

Current Erosion



Estimates of future erosion



FURTHER INFORMATION

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