

Simple monitoring tools for watershed assessment at Buol watershed, Central Sulawesi, Indonesia

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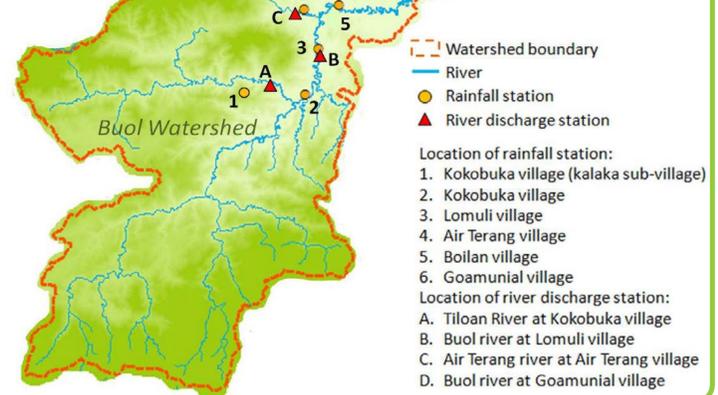
INTRODUCTION

Buol watershed (1753 km²) that approximately spans one third of Buol district in Central Sulawesi, Indonesia has undergone forest conversion to oil palm and mass settlements, threatening the provision of environmental services.

The watershed routinely experienced hydrological problems i.e. drought during dry season; floods and landslide during rainy season. Therefore, restoration of watershed function is necessary

Plans to restore watershed function requires supporting data, and when good hydrological data does not exist, we can use information from simple monitoring measured jointly with the local community. The monitoring methods can be more effective if done using participatory approach with the involvement of local community.

Buol Watershed (1753 km²), Buol District, Central Sulawesi, Indonesia



SIMPLE MONITORING METHODS OF WATERSHED FUNCTION

The purpose of simple monitoring of watershed functions in Buol watersheds are:

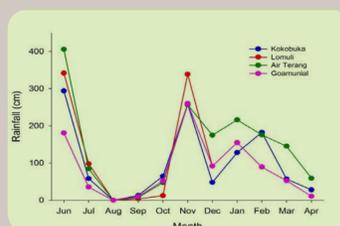
1. To provide scientific data on the behavior of important hydrological metrics for watershed assessment
2. By jointly measured with the local community, to increase the awareness on the importance of monitoring their landscape,

The monitoring measured three metrics related to watershed function: (1) rainfall; (2) river discharge and (3) water turbidity



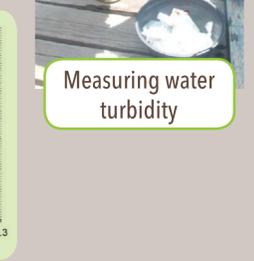
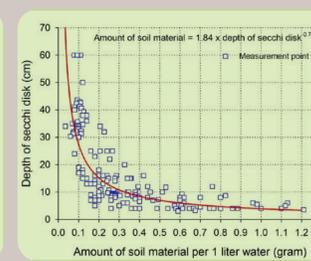
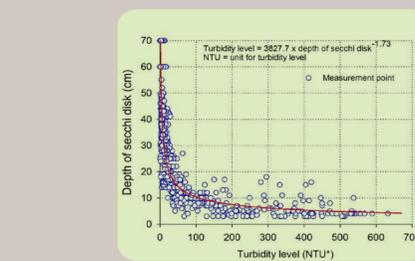
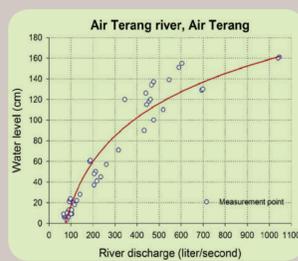
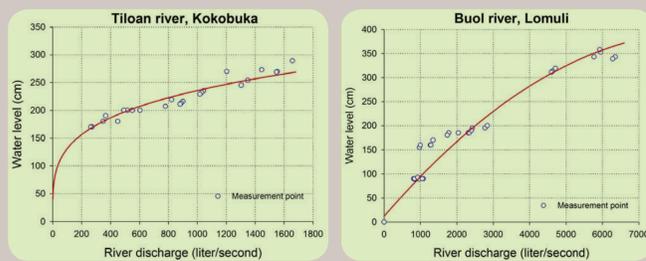
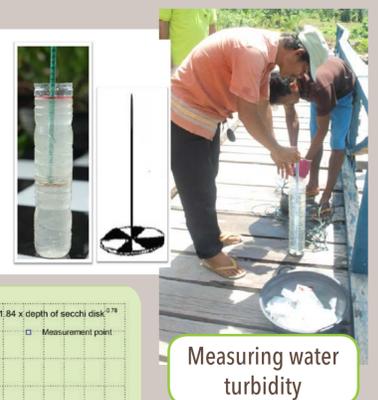
RESULTS OF MONITORING

1. The result of rainfall measurement indicates rainfall in Buol watershed has the same pattern from upstream to downstream, but with different rainfall amount. Daily rainfall monitoring has been conducted in 4 villages (Kokobuka, Lomuli, Air Terang and Goamunial) since June 2015 and 2 villages (Kalaka and Boilan) since November 2016.
2. The relationship between water level and river discharge in several measurement points in Buol watershed Buol river at Lomuli village, Tiloan river at Kokobuka village and Air Terang river at Air terang village.



3. The level of water turbidity represents the amount of soil material carried through erosion or landslide. The measurement was taken in the river at Lomuli, Kokobuka, Air Terang and Goamunial village.

A simple method for assessing water turbidity is using secchi disk. The depth of secchi disk at which point the disk disappears is a level of water turbidity. The graphs below show the relation between the depth of secchi disk and water turbidity and sediment concentration.



DISSEMINATION RESULT TO THE LOCAL COMMUNITY

As part of awareness raising, we disseminated the results to the community. The farmers were involved in the dissemination process



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