Supplement Revision note 1.

Table 1. Land use, vegetation, soil conservation measure and slope of measurement plots

Code	Land use	Vegetation (the average height of trees)	Terracing	Slope at plot level (%)
Upstream Rejoso watershed				
UT1	Old production forest	Pine (*Pinus merkusii*) (34 m) + grass	None	35-40
UT2	Young production forest	Pine (11 m) + grass	None	50-60
UT3	Agroforestry	Strip cemara (*Casuarina junghuniana)* (13 m) + Cabbage	None	40-50
UT4	Arable land	Banana, maize, carrot	None	40-50
Midstream Rejoso watershed				
MT1	Old production forest	Mix Pine (28 m) or mahogany (*Swietenia macrophylla*) (12 m), banana, salak (*Salacca zalacca*), taro (*Colocasia esculenta*), elephant grass (*Miscanthus giganteus*).	Bench terrace sloping outward	3-8
MT2	Agroforestry	Coffee-based (2 m) mix with durian (*Durio zibethinus*) (10 m), mahogany (9 m), *Leucaena leucocaphala* (8 m), *Paraserianthes falcataria* (11 m), *Albizia saman* (11 m), dadap (*Erythrina variegata*) (11 m), banana	Bench terrace sloping outward	3-8
MT3	Agroforestry	Clove (*Syzygium aromaticum*) (8 m), banana	Bench terrace sloping outward	3-8
MT4	Agroforestry	Manggo (*Mangifera indica*) (10 m), durian (10 m), *Randu kapuk* (*Ceiba pentandra*) (11 m) , maize, cassava, groundnut	Bench terrace sloping outward	3-8

Supplement Revision Note 2:

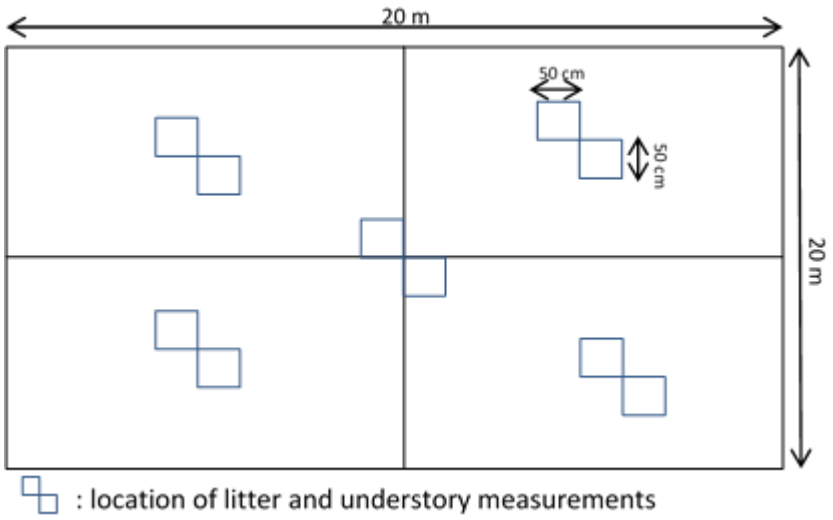

Figure 1. The Scheme to measure the undergrowth or litter mass.

Supplement Revision Note 3: The additional data to revise Table 2.

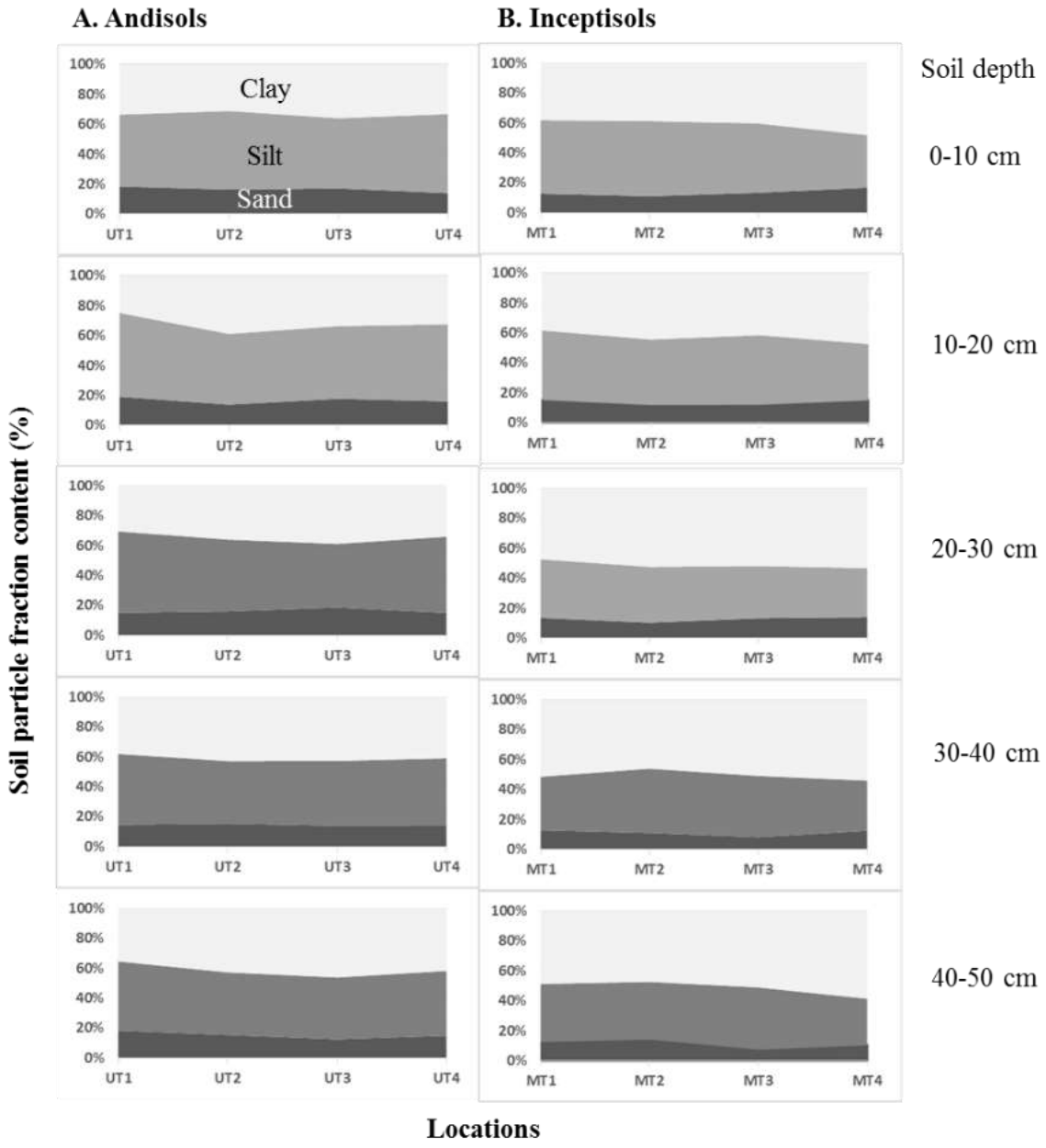

Figure: 2. Soil texture in five different layers in runoff plot measurements

Table 2. bulk density, particle density, soil porosity, macro-porosity and organic C of runoff plots

a. Upstream Rejoso watershed: Andisols

Location code	Bulk Density (g cm^{-3})*			Particle Density (g cm^{-3})*			Soil porosity (%)*			Soil Macro-porosity (%)			C_{org} (%)*		
	At soil depth (cm)														
	0-10	10-20	20-30	0-10	10-20	20-30	0-10	10-20	20-30	0-10	10-20	20-30	0-10	10-20	20-30
UT1	0.87a	0.81a	0.83a	2.16a	2.23a	2.31a	60a	63a	64c	8.0b	5.2b	0.9a	2.05bc	1.61c	1.79b
UT2	0.85a	0.86a	0.82a	2.27a	2.30a	2.33a	63a	63a	65c	5.1ab	1.5a	0.3a	2.46c	1.56bc	1.78b
UT3	0.81a	0.84a	0.85a	2.14a	2.12a	2.28a	62a	60a	63b	4.7ab	2.1ab	1.4a	1.17a	0.58a	0.71a
UT4	0.84a	0.88a	0.84a	2.28a	2.29a	2.08a	63a	62a	60a	3.0a	0.3a	0.1a	1.35a b	1.06ab	0.92a
LSD	0.07	0.13	0.12	0.17	0.21	0.38	4	5	1	3.52	3.4	1.8	0.85	0.50	0.50

b. Midstream Rejoso watershed: Inceptisols

Location code	Bulk Density (g cm^{-3})*			Particle Density (g cm^{-3})*			Soil porosity (%)*			Soil Macro-porosity (%)			C_{org} (%)*		
	At soil depth (cm)														
	0-10	10-20	20-30	0-10	10-20	20-30	0-10	10-20	20-30	0-10	10-20	20-30	0-10	10-20	20-30
MT1	0.83a	0.85a	0.83a	2.20a	2.28a	2.20a	62c	63a	62b	13.6a b	7.0bc	2.5c	1.73a	1.87a	1.65b
MT2	0.96b	0.91a	0.91a	2.42b	2.38a	2.21a	60bc	62a	59ab	16.1b	8.3c	1.8bc	2.22a	1.59a	1.84b
MT3	1.03bc	0.96a	0.94ab	2.38b	2.36a	2.40a	57ab	59a	61b	11.7a	3.4ab	0.9ab	2.19a	1.61a	1.01a
MT4	1.09c	1.04a	1.04b	2.38b	2.33a	2.33a	54a	55a	55a	11.4a	0.8a	0 a	1.71a	1.36a	1.12a
LSD	0.10	0.24	0.11	0.15	0.17	0.22	4	10	4	4..0	3.9	1.0	0.84	0.54	0.41

*The same letter indicates no statistically significant differences between location with Fisher's LSD test ($p<0.05$).

Note: soil macro porosity measured using metyline blue method, will be describe in the Material and Method

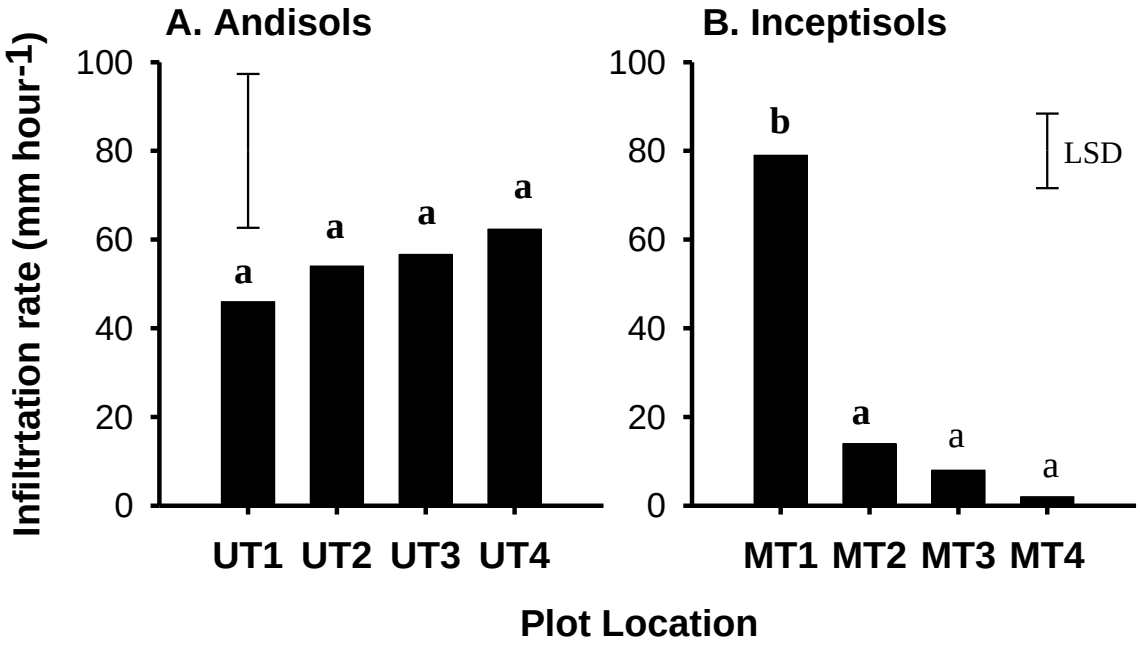

Figure 3. Soil Infiltration rate measured using double ring infiltrometer (n=6)

Supplement Revision Note 4.

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Supplement Revision Note 5.

The Rejoso watershed, is located in the foothills of Mount Bromo, covering 16 sub-districts in Pasuran District, East Java Province, Indonesia. The Rejoso watershed is located between 7º37'13.35" - 7º55'18.63" South, and between 112º48'32.51" to 113º55'55" East (Figure 1). The Rejoso watershed covers an area of 63,359 hectares with a watershed length of about 22 km. This study was conducted in two locations, namely in the upstream (above 800 m a.s.l.) and midstream (400-800 m a.s.l.) sections, with the dominant vegetation (land cover) selected for each location (Figure 1). In each location four dominant land use systems were assessed (Table 1), spatially replicated in three separate measurement plots.

Climatic conditions that influence hydrology and erosion are largely determined by influence of the northwest and southwest monsoons. The northwest monsoon, picking up large amounts of moisture over the Indian Ocean, brings in most of the annual precipitation in the area, and predominates during the period from November through April. Although there is considerable variation in the amount and distribution of rainfall from year to year, most places in the watershed receive about four-fifth of the rainfall during the November-April wet season. Due to topographic influences, there is considerable spatial variation in annual precipitation as well, but generally ranges from 1500 mm to 3000 mm. The May to October period is considered the dry season. Then the southeast monsoon predominates, bringing much smaller amounts of precipitation due to the lower atmospheric moisture caused by lower temperatures in the Southern hemisphere at this time of the year. The rainfall distribution in upper-stream and Mid-stream is indicated that…..

Will be presenting graph monthly rainfall distribution from the average 10 years rain evens in Upper-stream and Mid-stream.

The Rejoso watershed watersheds consist of four types of soil, namely: Andisols, Inceptisols, Alfisols, and Entisols. Andisols are mainly distributed in the upperland, on the upper slopes of volcanoes. Andisols have a distinct black to very dark brown surface horizon within organic matter, which usually overlies a brown to dark yellowish brown subsoil. The clay fraction is dominated by allophane compounds. Andisols are highly permeable, porous with low bulk density, a high water-holding capacity and a crumb structure. The most common texture is sandy loam. Both soils have high inherent ferlity and are highly erodible only when seriously distributed. The midle and some lower volcanic slopes, consisting of easily weatherable permeable tuffs and ashes, give rise to deep stable soils – Inceptisols and Alfisols. Inceptisols are soils with only a limited horizon differenziation. Their texture ranges from deep friable clays to clay loams. Alfisols are soils which have accumulation of clay in the subsoil. Their texture ranges from loam to clay loam in the topsoil and clay loam to clay in the subsoil. Both soils have moderate to high inherent fertility but are highly susceptible to erosion. The Entisols are soils that lack horizon development and are found on volcanic sands, ashes and tuffs. Entisols occur on recent and sub-recent lahars of the Bromo volcanoes. Entisols with a coarse texture are extremely erodible and have very low water holding capacities. Permanent vegetative cover and especially diversified tree crops and agroforestry or forestry are most suitable land utilisation types to prevent erosion.

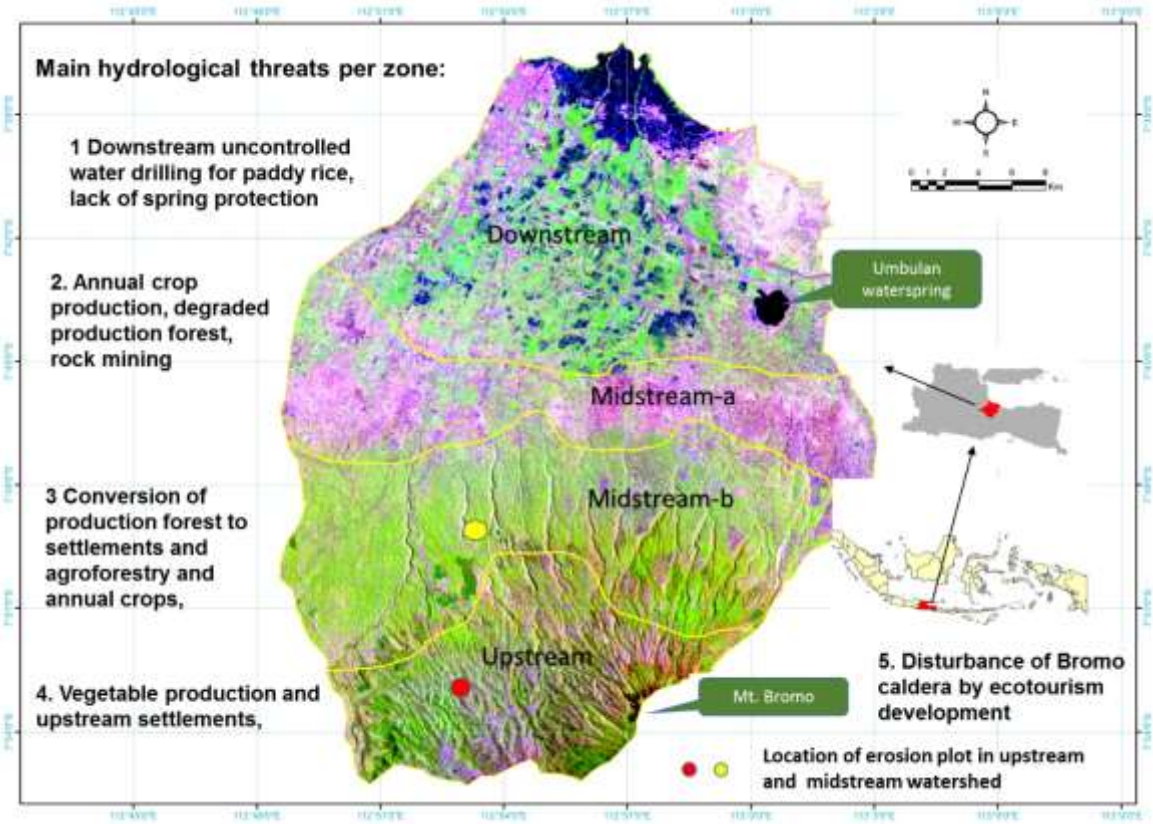

Figure 4. The Rejoso Watershed from upstream (at the bottom) to sea level and land uses considered to be a hydrological threat; purple indicates open soil, green tree cover. (Modified from USGS, 2019).

Supplement Revision Note 6

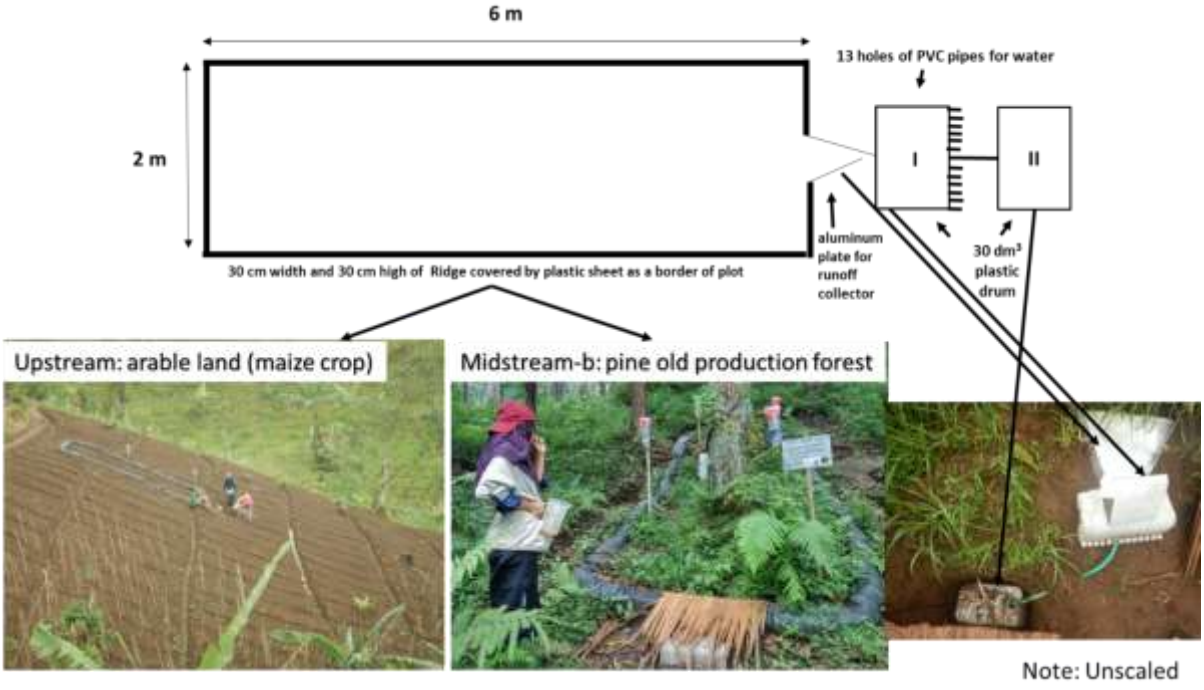

Figure 5. Runoff and soil erosion plot measurements in Rejoso Watershed.).

Supplement Revision Note 7.

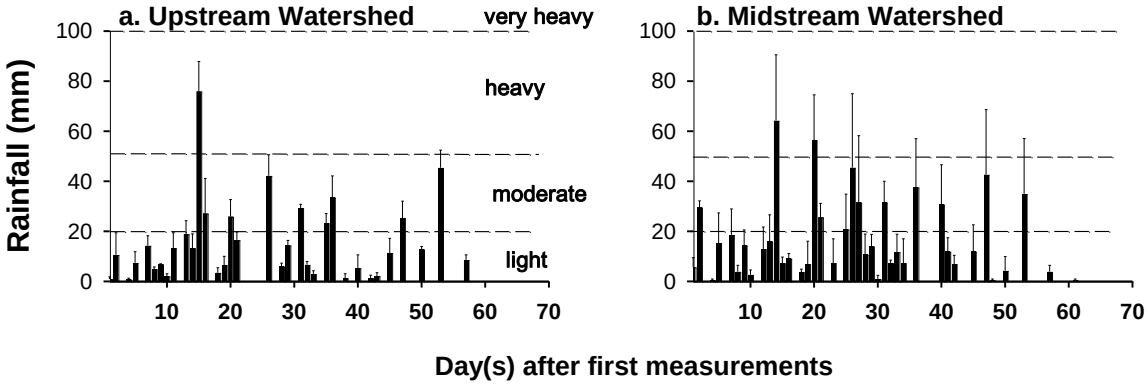

Figure 6. Distribution of rainfall during observation start on March 03, 2017 in the Rejoso watershed.