

# Rainfall partitioning in three major types of forests in the mid-hills of Nepal

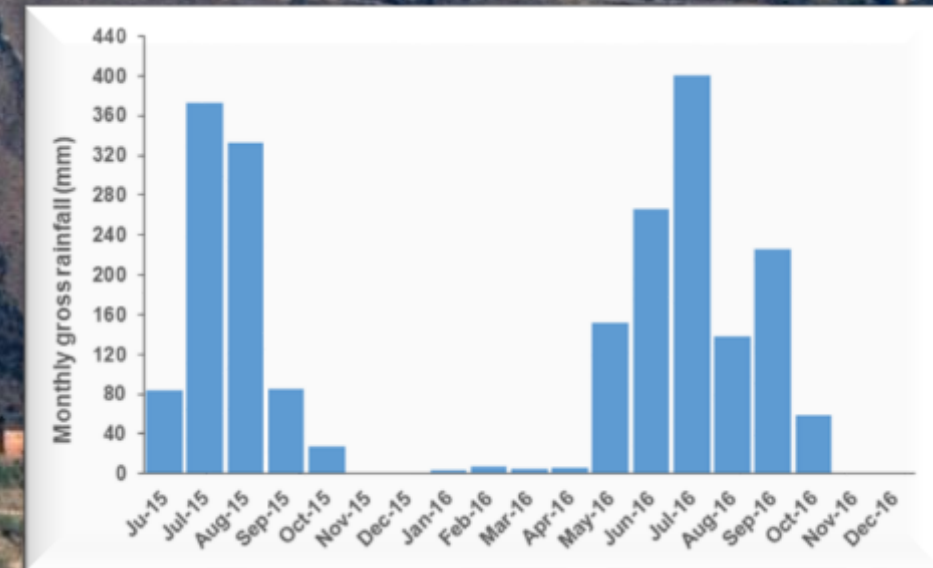
**Manoj Badu**<sup>1</sup>, Chandra Prasad Ghimire<sup>2</sup>, Ian Nuberg<sup>1</sup>, L. Adrian Bruijnzeel<sup>3</sup>, Wayne S. Meyer<sup>4</sup>





# The mid-hills of Nepal

- ❖ Advanced land degradation
- ❖ Highly concentrated rainfall (June-September)
- ❖ Declining water resources





# Degraded landscape and water

- ❖ High discharge fluctuations and accelerated erosion during rainy season
- ❖ Reduced dry-season flow and hardships to year-round water availability



Roshi river flow in September (a) and April 2015 (b) near the current study sites; Increased hardships to accessing water (c)



## Forests currently dominate the land use of the mid-hills catchments

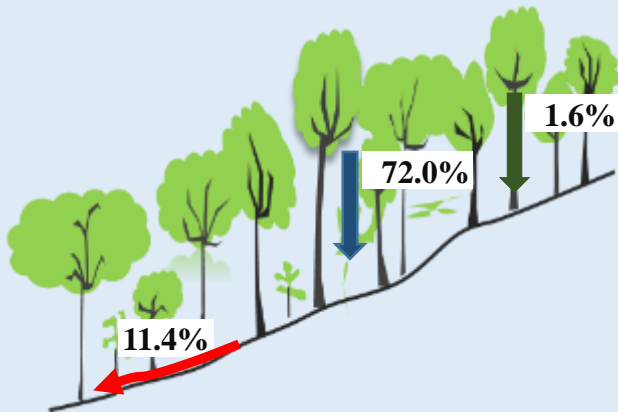
- ❖ Nealy 7 mil. people, organised as Community Forest User Groups, use the local forests for firewood, fodder and litter in varying degrees
- ❖ Reports of declining water sources are growing, with concerns about the possibly negative role of forest plantations
- ❖ Little is known about the effects of various forest types on water yield in the mid-hills region



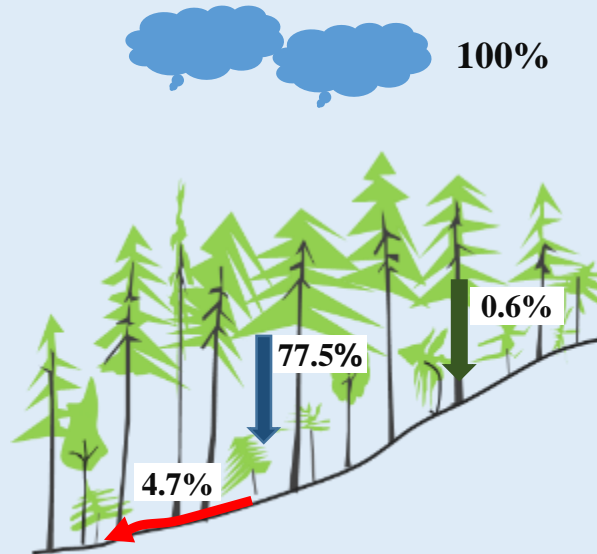


We measured daily rainfall, **throughfall**, **stemflow** and **overland flow** during June 2015-December 2016 in three major forest types of the mid-hills

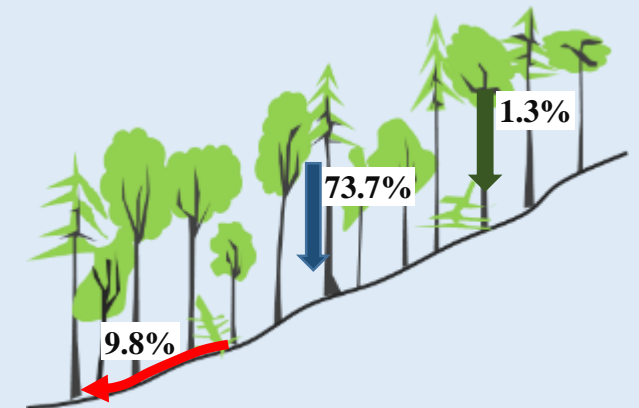
Broadleaf forest



Pine-dominated forest



Mixed forest (broadleaf/pine sp)



Note: Overland flow values are expressed as % of net rainfall



## Conclusion

- ❖ In addition to the forest types, intensity of forest use by the local communities is an important determinant of forest-water relationships in Nepal's mid-hills catchments