



## **Comparative effects of oil palm and selective logging on erosion, river channels and water chemistry in Malaysian steeplands**

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Oil palm land-use has expanded greatly in recent decades in SE Asia and other parts of the wet tropics, including to steepland areas, where bench-terraced landscaping is involved. Retaining (and sometimes restoring) riparian forest strips and rainforest fragments on the steepest slopes have been adopted as elements of strategies designed to reduce adverse effects on runoff generation, erosion, downstream sedimentation, flooding and pollutional problems – as well as biodiversity and emissions. Results of catchment monitoring, soil erosion and sediment fingerprinting research in oil palm and selectively logged steeplands of eastern Sabah and Peninsular Malaysia are presented. The evidence indicates the greater scale and temporal persistence of effects that oil palm land-use (compared with selective logging) has had on suspended sediment dynamics, soil erosion, downstream sedimentation, channel geometry and dynamics and river pollution. The importance of (1) high densities of roads and tracks and (2) relatively impermeable bench-terraced terrain in enhancing runoff, sediment and nutrient outputs in storm events is stressed. Influences of oil palm management practices including riparian forest strips in increasing or reducing these effects are critically reviewed and ways of increasing the effectiveness of riparian forest strips are proposed. The design and rationale of current projects exploring and testing consequences of existing and proposed improved land management practices are briefly described. The key importance of involvement of people from the oil palm industry (including multinational companies, smallholders and their organizations) and Government bodies that are responsible for land-use policies and land management practices is stressed.