

Technical Bulletin # 70:

Critical Watersheds

The Context

The need for watershed management is most urgent and its implementation is most likely to achieve a positive and measurable impact in watersheds where essential watershed functions are already critically endangered or are likely to become critically endangered. Such watersheds could be considered as “sensitive” or “critical” and could include watersheds with high rates of deforestation, land use change, and population growth.

Relevance for the Cambodia HARVEST Program

The program will deal with the development of watershed management approaches. This development will take place in pilot watersheds. Pilot watersheds will be selected from among those watersheds that are considered as “sensitive” or “critical”. The below criteria will potentially be used in the Tonle Sap Basin in order to identify critical watersheds in Battambang, Pursat and Kampong Thom Provinces.

Criteria to define Critical Watersheds

As there is no universally accepted definition of what constitutes a critical watershed, there is a need to identify and agree on suitable criteria. There are two broad classes of criteria that could be employed to define and identify critical watersheds.

Dynamic Criteria		Static Criteria
<ul style="list-style-type: none"> • Deforestation (high rates) • Land Use Change (high rates) • Population Growth (high rates) • Pressure on Natural Resources (poverty induced or otherwise) • Changes in water quality and quantity 		<ul style="list-style-type: none"> • Elevation range (high) • Slopes (steep) • No Permanent Forest Cover

The use of dynamic criteria are often more appropriate than using static criteria. Dynamic criteria indicate human interventions and change, and thus indicate areas where human activities are more likely to influence and critically endanger essential watershed functions.



Watershed classification

Watershed classification is a method of dividing a landscape into different watershed classes on the basis of selected topographic features. It describes the potential topographic soil erosion risks of a landscape on the basis of its physical and /or environmental features.

Watershed Class 1 (Protected Forest)

Watershed Class 2 (Commercial Forest)

Watershed Class 3 (Agroforestry)

Watershed Class 4 (Upland Farming)

Watershed Class 5 (Lowland Farming)

Watershed classification maps enable geographical priority settings for watershed management, because they show areas that are potentially sensitive to water resource degradation by soil erosion. By overlaying these watershed classes with land cover data, it is possible to indicate areas where degradation is currently taking place. These are those localities where potentially sensitive areas (watershed classes indicating steep land and high risks) are lacking significant vegetation cover.

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