Rapid Hydrological Appraisal (RHA) in a Context of Environmental Service Rewards

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I. What is RHA?

Rapid Hydrological Appraisal (RHA) is a tool to provide clarity on hydrological functions for all stakeholders in watershed environmental services

II. Why RHA?

in Singkarak Basin

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1%

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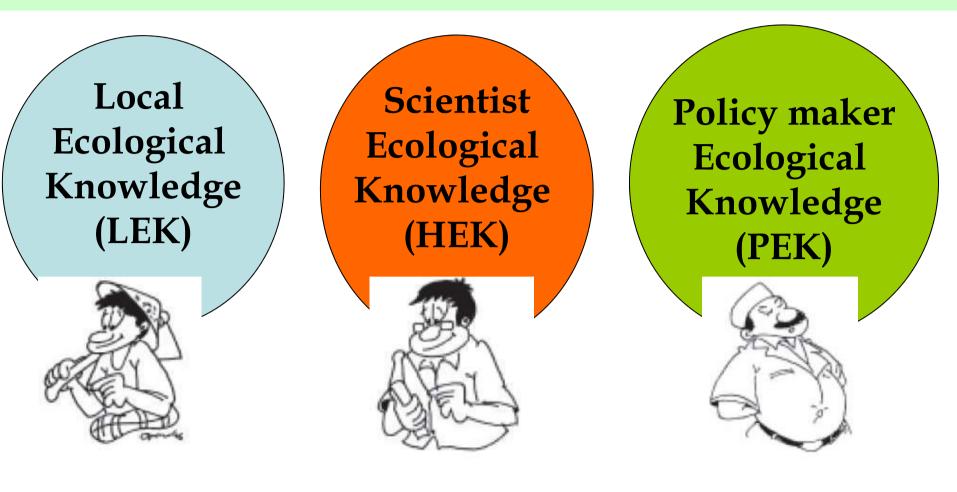
11%

8%

2%-

1%-

RHA can help to bridge the gaps of knowledge that may exist between local people, policy makers and scientist in watershed area



This approach hopefully leads to a situation where all knowledge systems are integrated and linked

Local Ecological Knowledge (LEK) LEK III. Steps in RHA Participatory landscape analysis: forest, trees, slopes and 'hot spots', landscape, water & river Policy Maker Ecological Group discussion, Knowledge interview, site visit: HEK local K elicitation Discussion, inter-Participatory **Hydrologist Ecological** view: government river basin Knowledge officials, agency, Synergy and contrasts analysis: community leader, Calibrated/ in knowledge & forest, downstream perceptions > validated landscape, stakeholders water & river negotiated outcomes hydrological model Analysis of Hydrological Use of GenRiver ΔLU drivers **Process** consequences of or other and scenarios plausible land use hydrological Physical and Spatial GIS Pattern change scenarios model **Analysis of Watershed** Baseline, thematic map Administrative & Spatial Spatial data: for watershed framework analysis & GIS development landscape model Physical data & Map Collections, spatial climate databases, climate change models

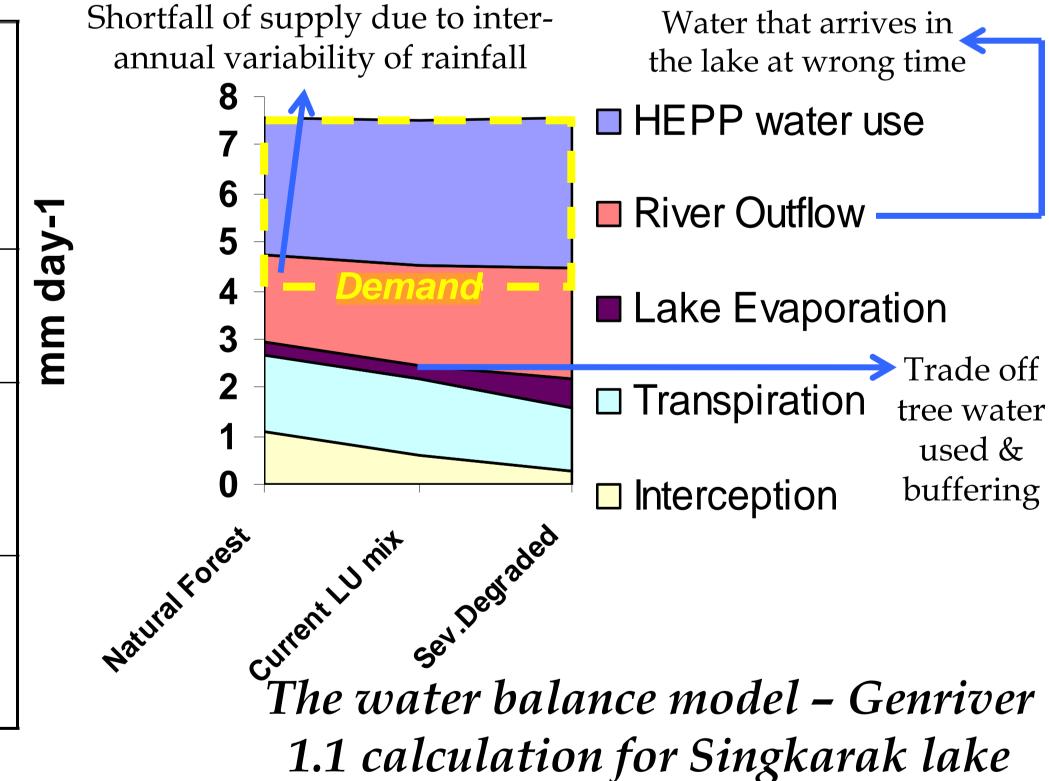
IV. Result of RHA pioneer: Singkarak Lake, West Sumatra - Indonesia



■ Pine	Local people – upstream &	Water fluctuation, lake water quality, flooding
■ Mix garden	surrounding the	lakeside, decreasing fish
■ Mix garden (coconut)	lake	populations
Agricultural fields	Local people -	Water shortage due to lake
Ricefield	downstream	water regulation by HEP
Shrub	HEP	Water fluctuation, low
□ Grass		water debit, high sediment
■ Settlement	T 1	in the lake
■ Water body	Local government	Lake water quality, high sedimentation in the river,
□ No data (cloud and shad	low)	land degradation, fishery

Payments made by the HEP may have various types of rationale:

- Compensation for damage caused by the HEP project
- Shared responsibility for maintaining the water quality
- Payments of tax to local government will enhancing payments to the local community
- Payments for environmental services conditional to the delivery of these services



Major hydrological issues 0 - 200 m 200 - 500 m Unstable river flow, HEP water Water flow & 500- 1000 m 1000 - 2000 m regulation, flooding lakeside regulation Lake water quality, sediment in Water quality the stream into the lake

Fisheries

Impacts 2 years after RHA Before RHA Singkarak

- Deforestation see as the main reason of all problems, including blackouts
- Tree planting as main solution
- Village with most tree cover should get highest share in royalties
- Problems with the Ikan bilih fish linked to deforestation

After RHA + follow-up discussions

- Focus on lake & its water quality
- More awareness of climatic dependence
- Less blaming the upland deforestation for blackouts
- Less focus on 'tree planting' as the only solution
- More care in planning coffee reintensification : Kopi Ulu
- Fishery problem is about breeding grounds & overfishing



Local endemic fish impacted by

over fishing & lake degradation







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description of this approach, available at http://www.worldagroforestrycentre.org/sea/networks/RUPES/index.asp Poster exhibited at Water Policy Conference, Prague, 22 - 25 June 2009

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