

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

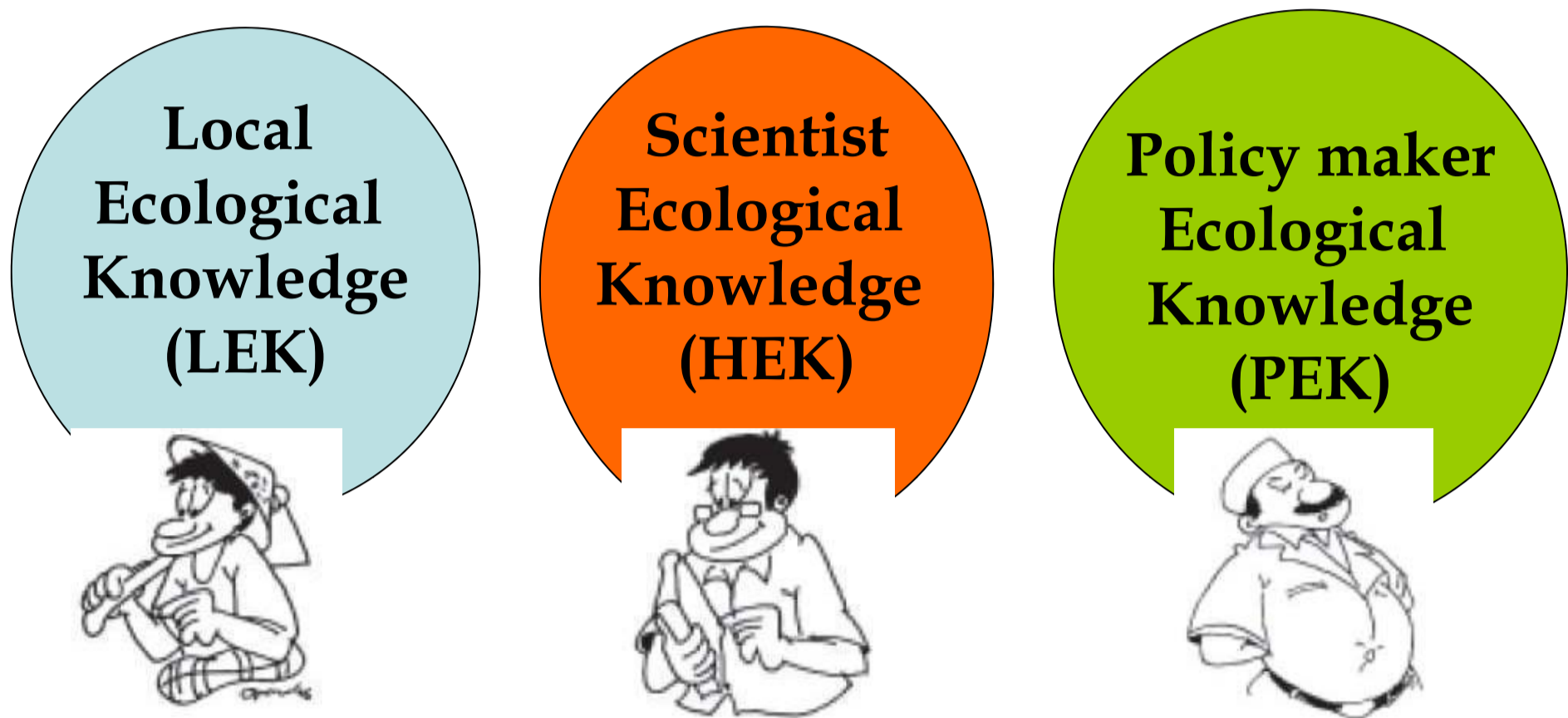
RHA Team* World Agroforestry Center – South East Asia (ICRAF – SEA)

I. What is RHA ?

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

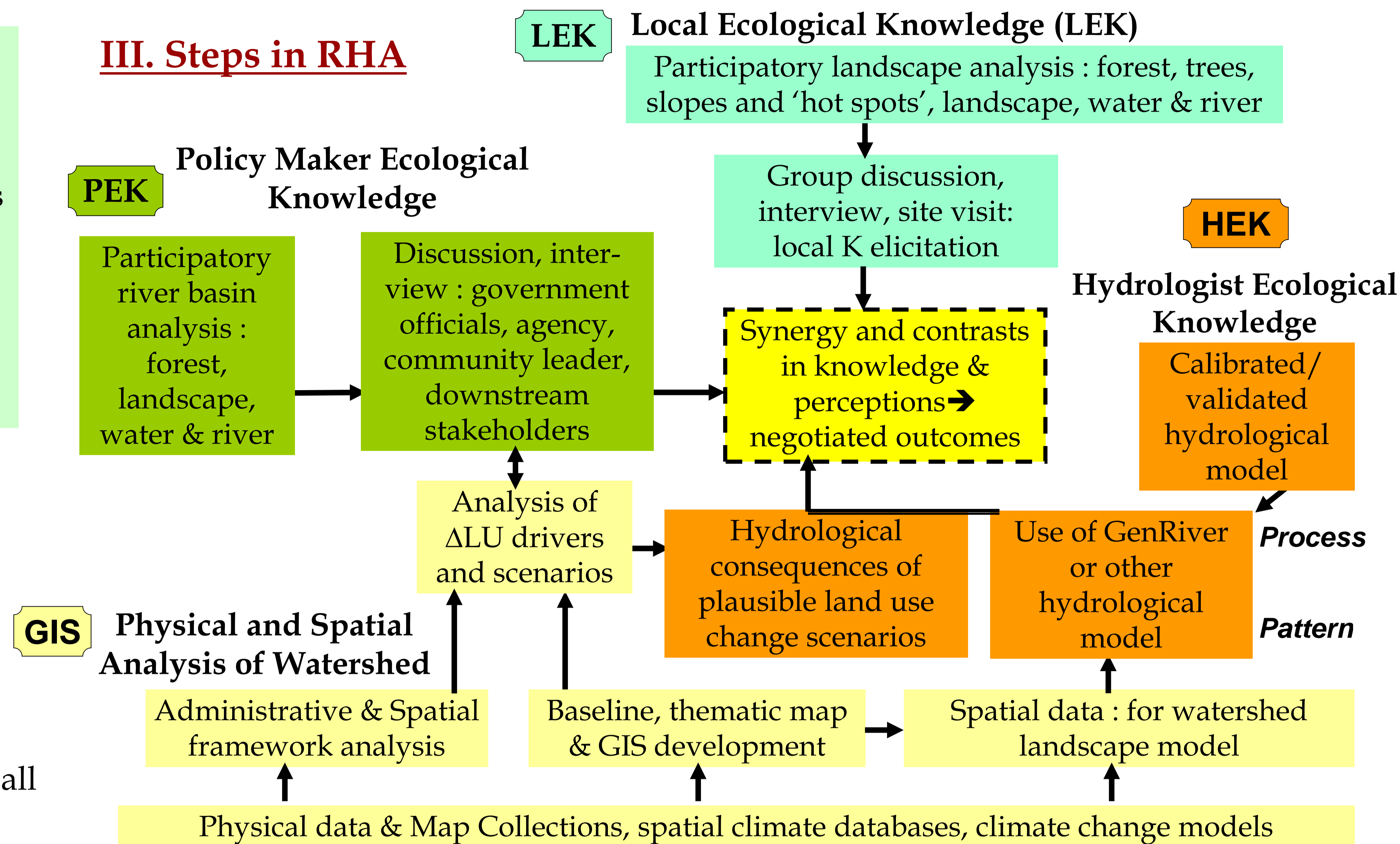
II. Why RHA ?

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

III. Steps in RHA



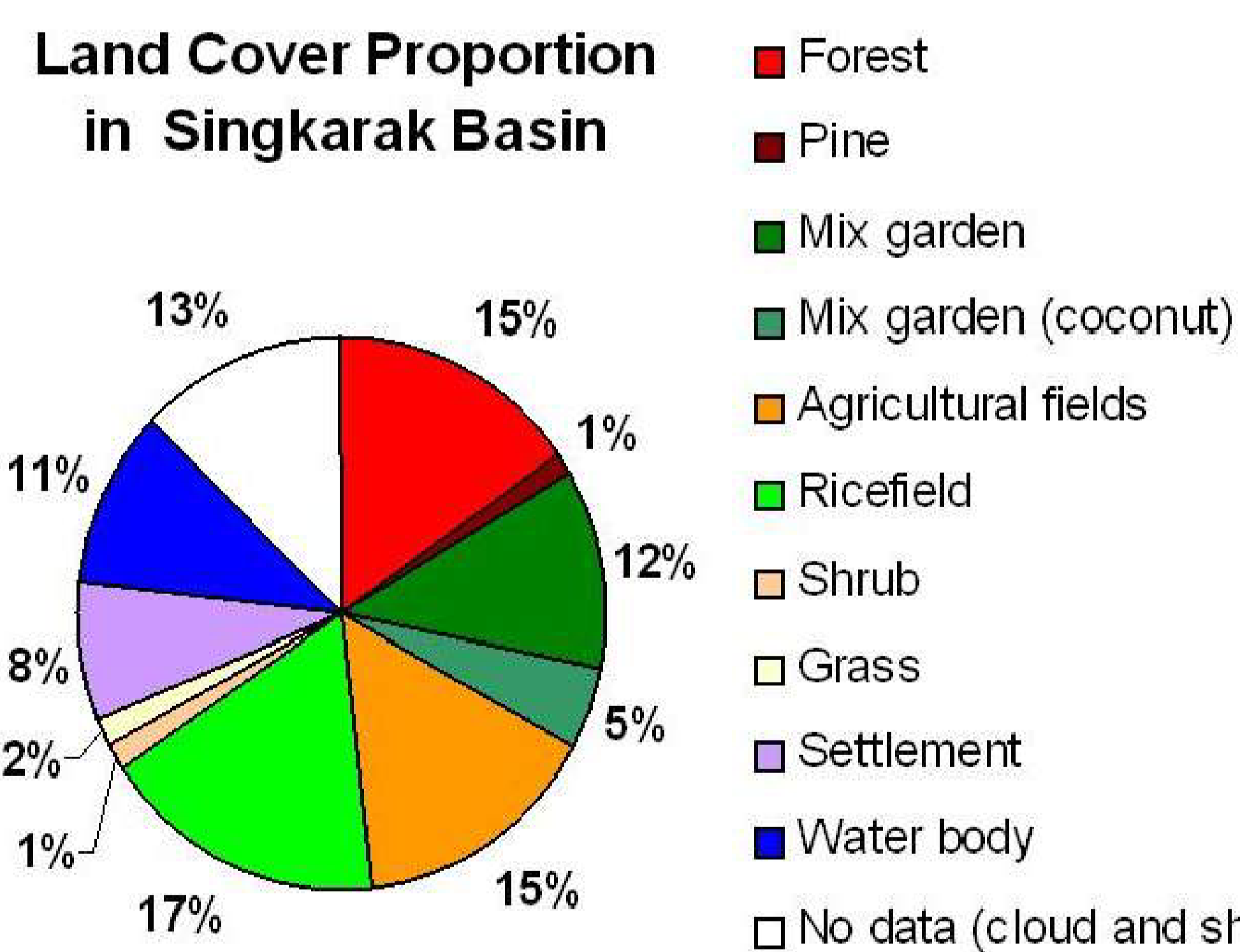
IV. Result of RHA pioneer : Singkarak Lake, West Sumatra - Indonesia



Singkarak lake provides :
irrigation, hydro electric power (HEP), fishing & tourism

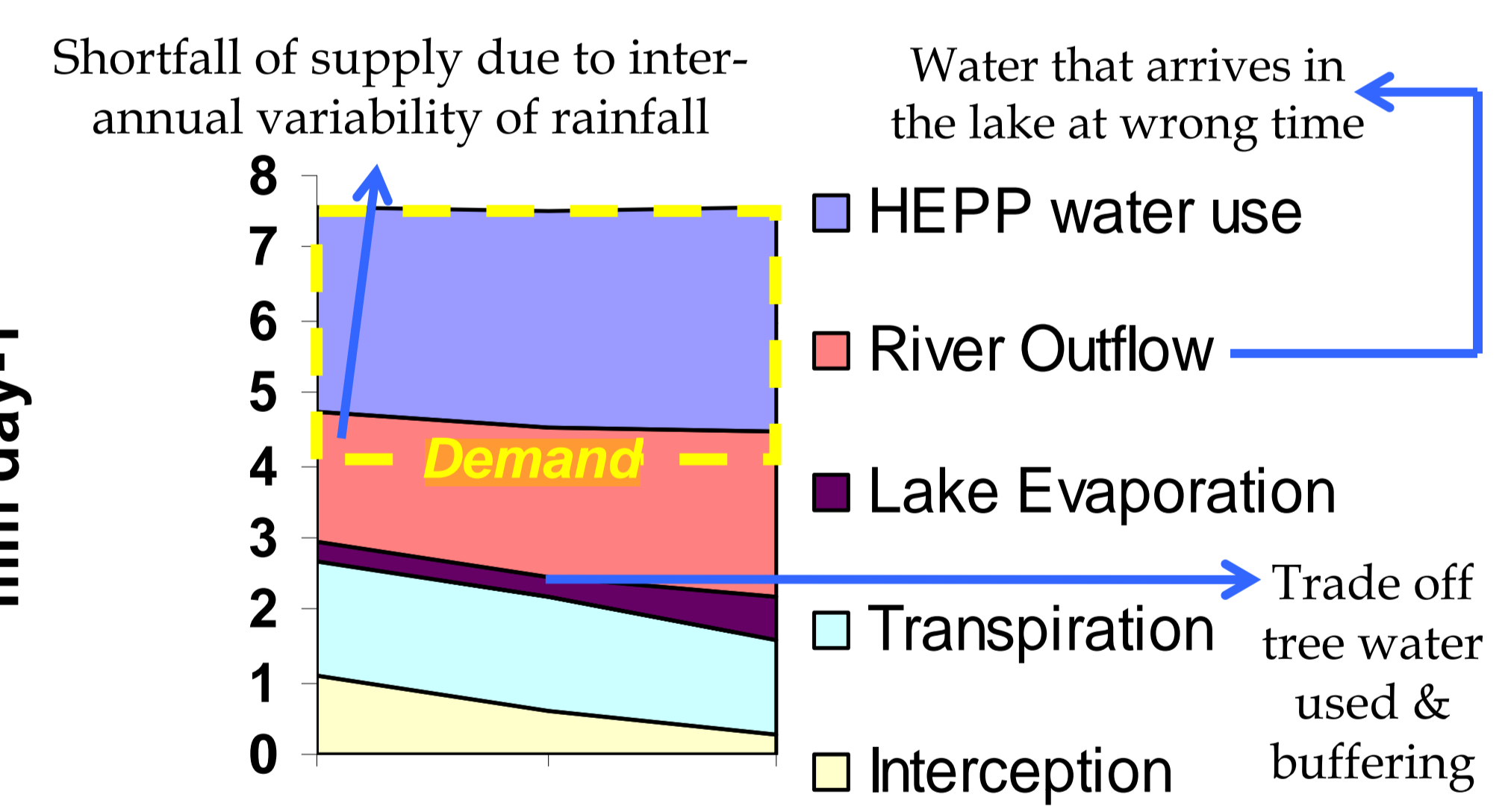
- Payments made by the HEP may have various types of rationale :
- Compensation for damage caused by the HEP project
 - Shared responsibility for maintaining the water quality
 - Payments of tax to local government will enhancing payments to the local community
 - Payments for environmental services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

Land Cover Proportion in Singkarak Basin

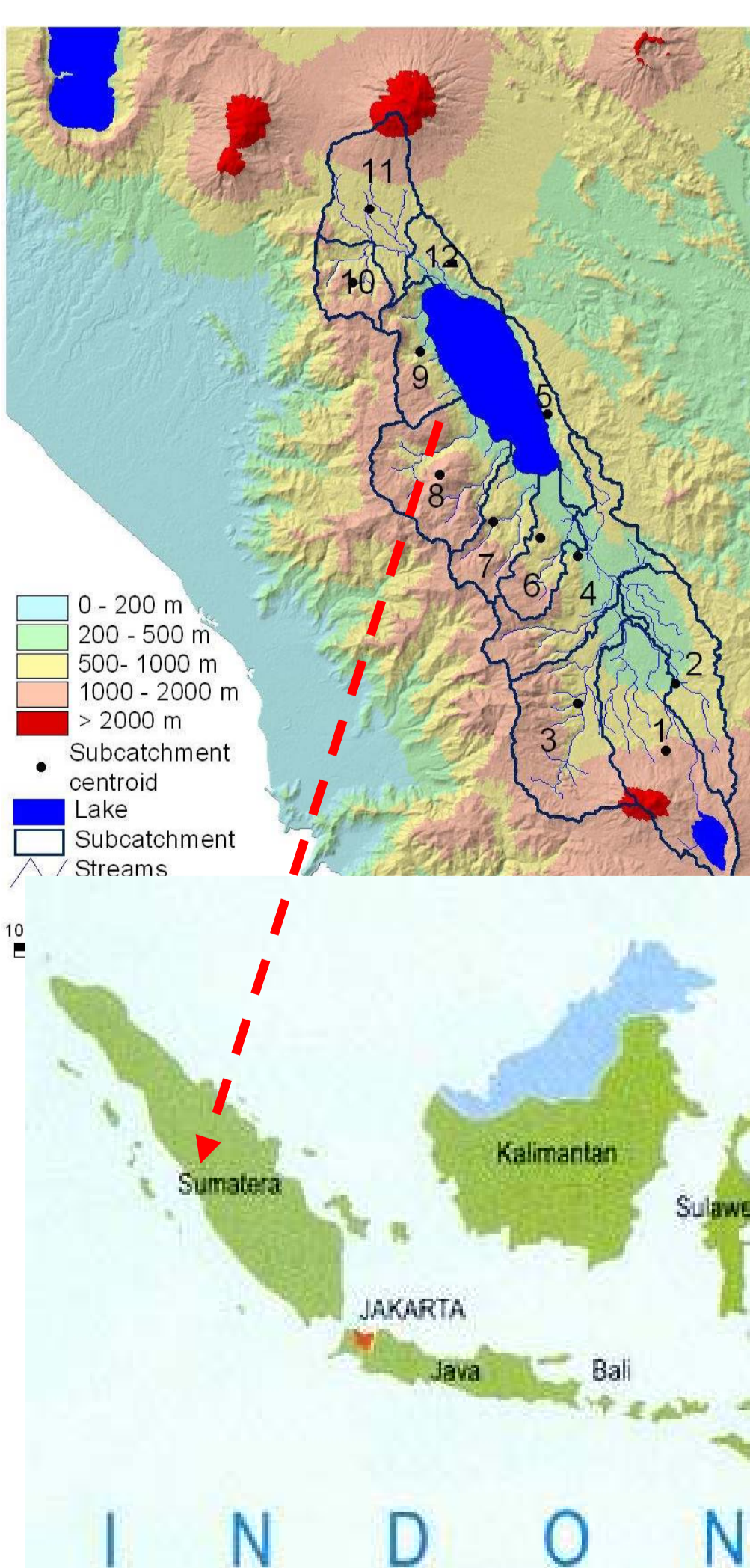


The major stakeholders & related issues

Local people - upstream & surrounding the lake	Water fluctuation, lake water quality, flooding lakeside, decreasing fish populations
Local people - downstream	Water shortage due to lake water regulation by HEP
HEP	Water fluctuation, low water debit, high sediment in the lake
Local government	Lake water quality, high sedimentation in the river, land degradation, fishery



The water balance model - Genriver 1.1 calculation for Singkarak lake



Major hydrological issues

Water flow & regulation	Unstable river flow, HEP water regulation, flooding lakeside
Water quality	Lake water quality, sediment in the stream into the lake
Fisheries	Local endemic fish impacted by over fishing & lake degradation

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