PROJECT SHEET

Bekok River Rehabilitation, Malaysia
Balancing water supply, agricultural and flooding concerns

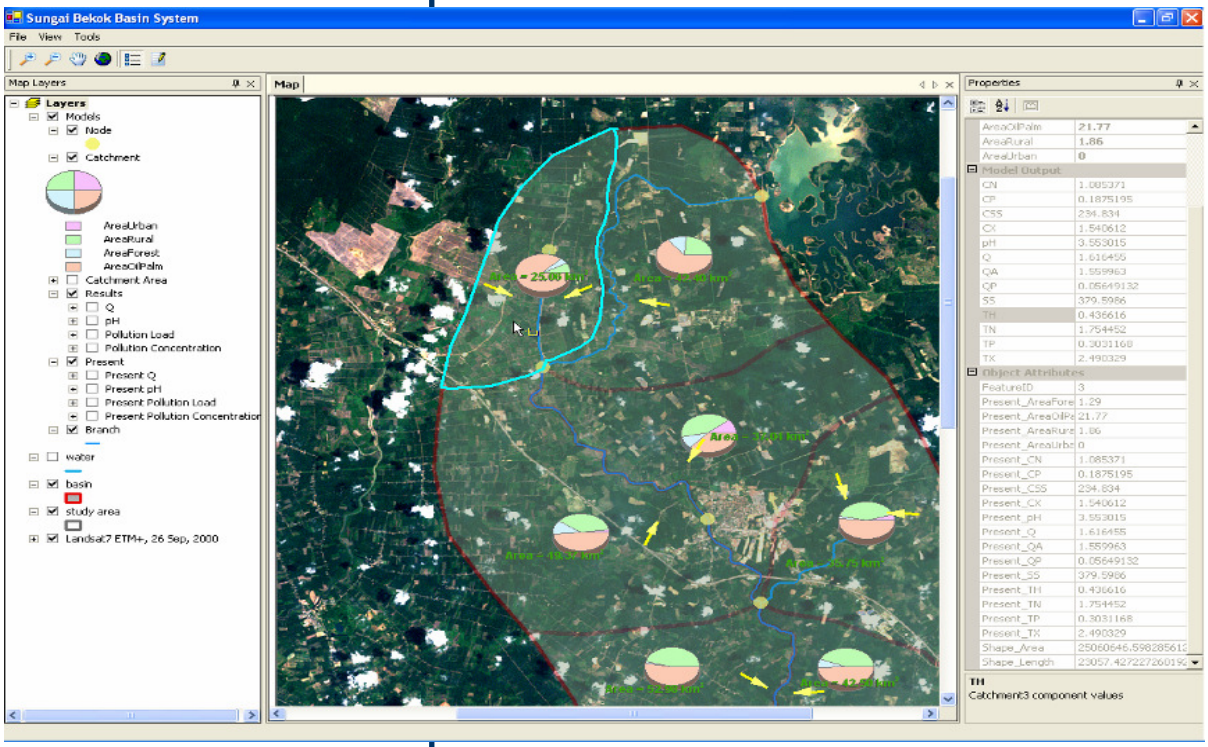
Map:

Background:
Bekok River faces severe water quality problems with high concentrations of sediment, Iron (Fe) (1 mg/l to 2 mg/l at Yong Peng) and low values of pH (as low as 2.5 at Yong Peng). This disables the water treatment plants Yong Peng 2 & 3, Sri Gading and Parit Raja from producing enough potable water to the consumers in the area.

This pilot project investigated the relationship between water table level, precipitation and acid release with the purpose of finding a compromise in terms of water level, which allowed continued agricultural production (oil palm), relative safety from flooding and not least continued production of potable water under reasonable conditions (Class IIB raw water quality).

Apart from mapping soil and water characteristics throughout the drainage area, the values for average oil palm growth as a function of pH and water level were extracted from literature sources, a topographical map overlaid with water table variations to determine flood risk areas and pH of water as a function of the water level measured. These three functions were fed to a simple optimisation model to find the ideal water level in terms of a compromise considering all three concerns/interests.

An environmental management plan was elaborated as an extension to the pilot project considering the pilot drainage area findings, but extrapolated to the entire Bekok river catchment area. As a decision support tool for civil servants of the DID and interested politicians, a GIS-based software programme was also developed allowing users to perform theoretical manipulations in land use for each sub-catchment and then view the resulting water quality change in the sub-catchment as well as at the water intake further downstream.



Project partners:
Asia Water & Environment S/B
ViSKon Ltd.
UCEWP, Ukraine

Beneficiary: Johor State and SAJ

Client: Government of Malaysia, MNRE

Land use categories were specified as either urban (high density settlements), rural (low density settlements), agriculture or forest, and assigned values for water flow, pH and other pollution parameters. By simulating changes in land use, users may view the resulting consequences in terms of increased or reduced pollution, flow, pH etc. The model was constructed so that new categories and land uses may be easily added as necessity dictates and/or data availability permits. Training in use of the software was provided to government officials.

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