



UNIVERSIDADE FEDERAL DE
CAMPINA GRANDE

SWAT's hydro-sedimentological simulations for the Brazilian semi-arid

*Itamara Taveira¹, Vajapeyam Srinivasan², Carlos Galvão³,
Hugo Alcântara³, Simone Morais³, Mayara Silva³*

1 Ceará Water Resources Company, Fortaleza, Brazil

2 Federal University of Pernambuco, Caruaru, Brazil

3 Federal University of Campina Grande, Campina Grande, Brazil

Nordeste: the northeastern region of Brazil



Nordeste's semi-arid:
Caatinga biome



Nordeste's semi-arid

high variability of rainfall and river discharge

land degradation and desertification risks

social and economic vulnerability

challenge: adaptation – “convivência com a seca”

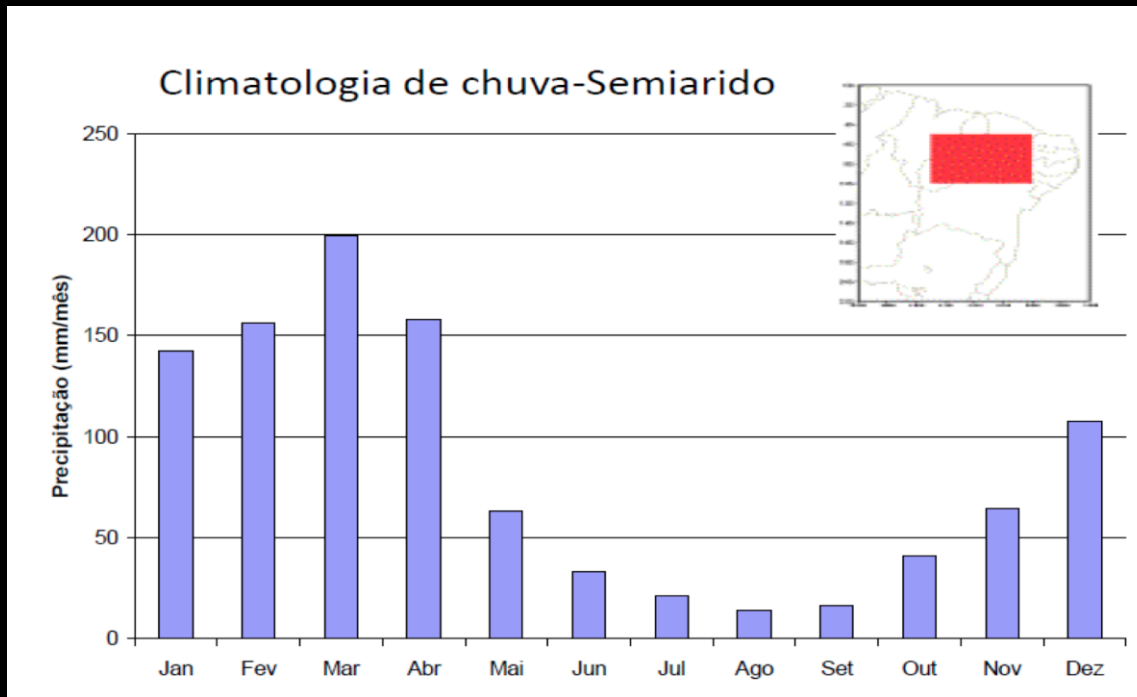
hydrometeorological and LUCC knowledge is very

important for water and agricultural management

the semi-arid extremes



rainfall characteristics and distribution



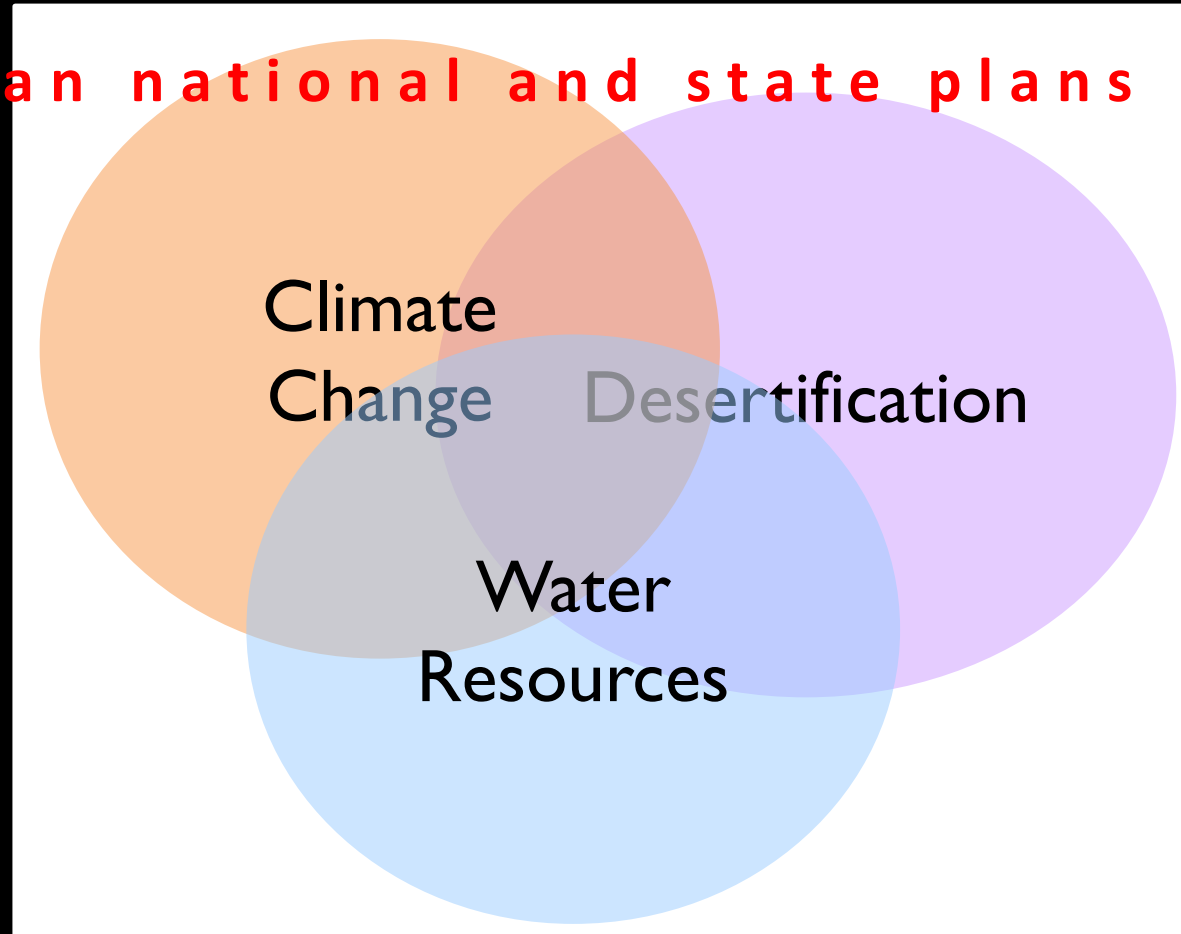
Marengo et al. (2000)

basis for adaptation

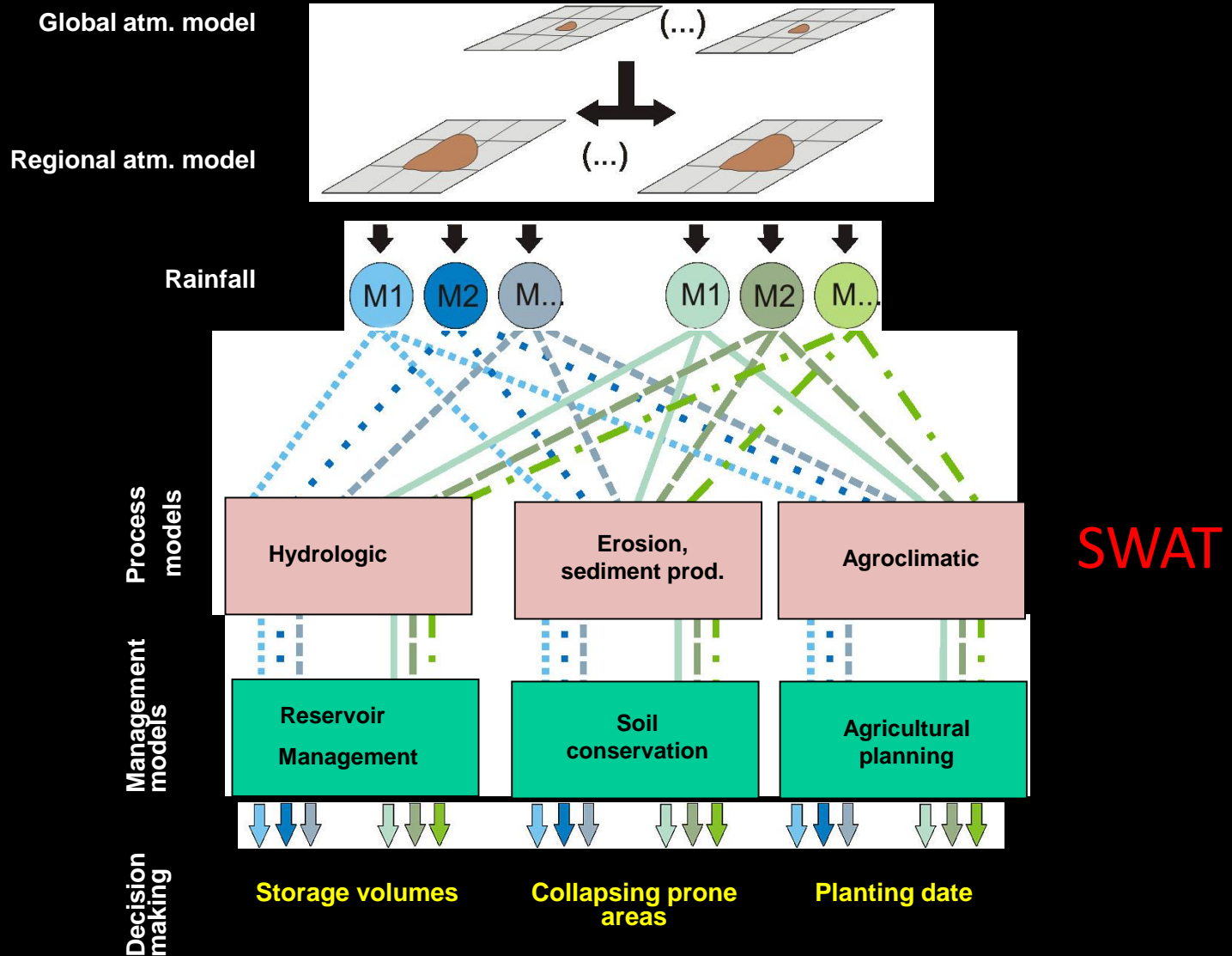
new legal and institutional framework for
water management

Brazilian national and state plans

decentralized
and
participative



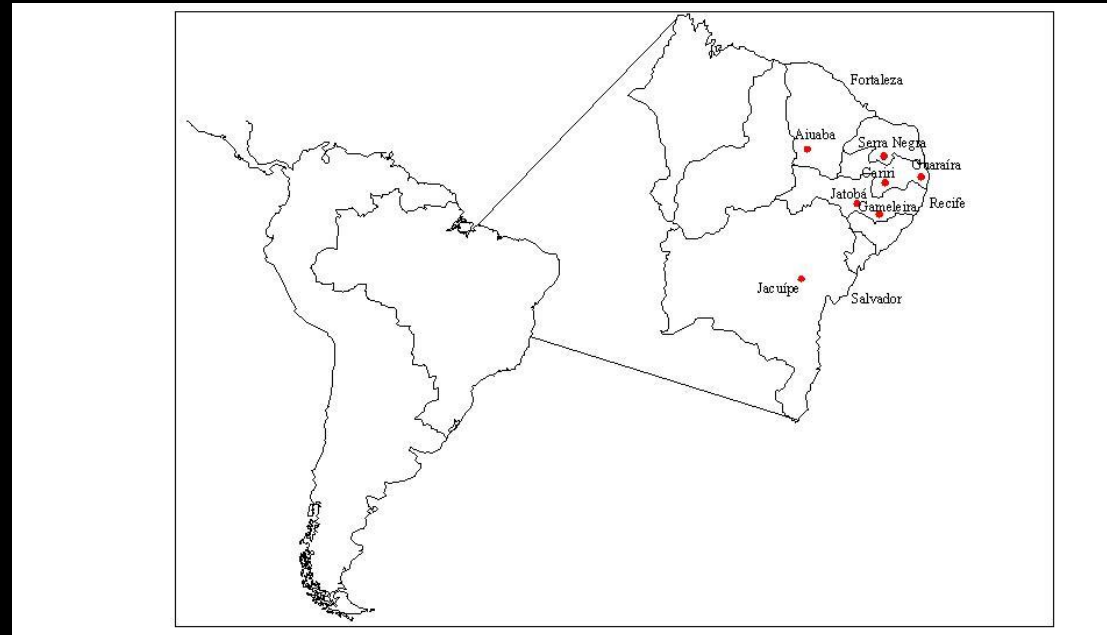
integrated modelling supporting adaptation



network of semi-arid representative and
experimental basins:
basis for SWAT parameterization

distributed modelling
experience:

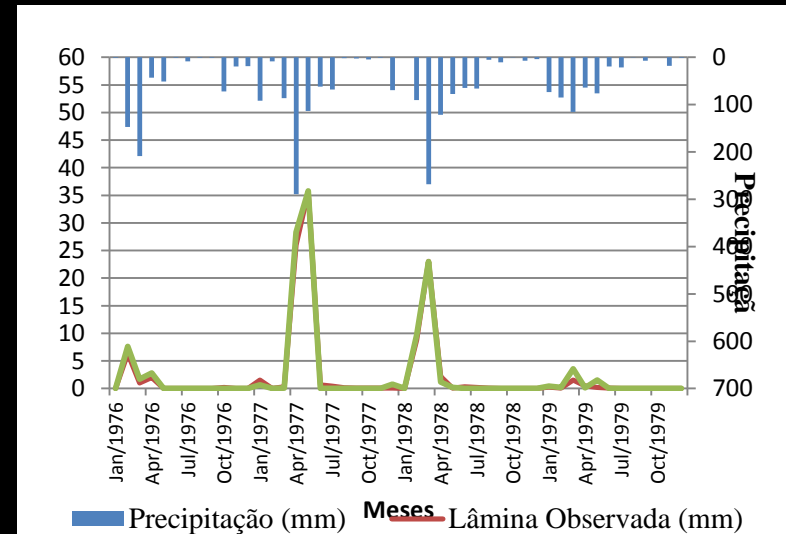
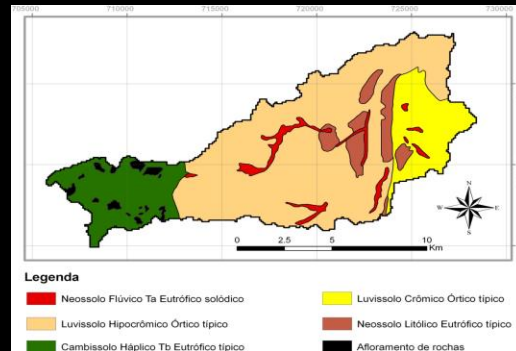
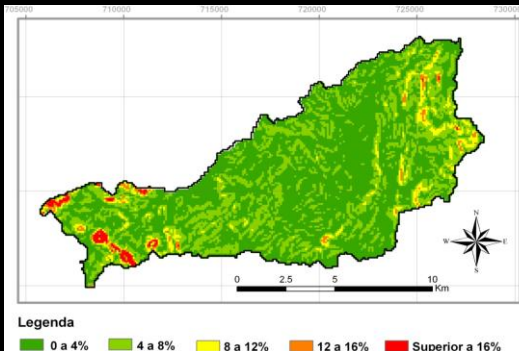
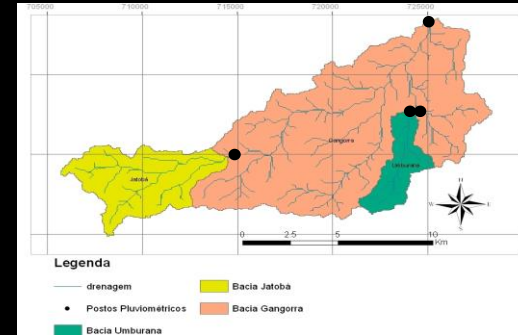
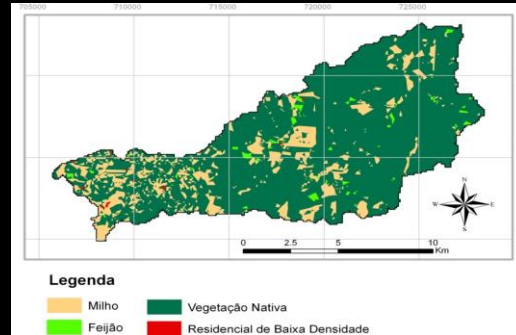
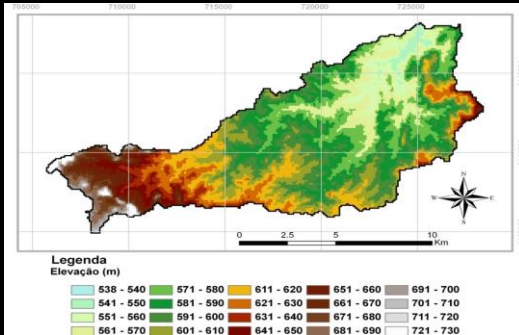
WESP
CHDM
WEPP
KINEROS 2
AÇUMOD
SWAT



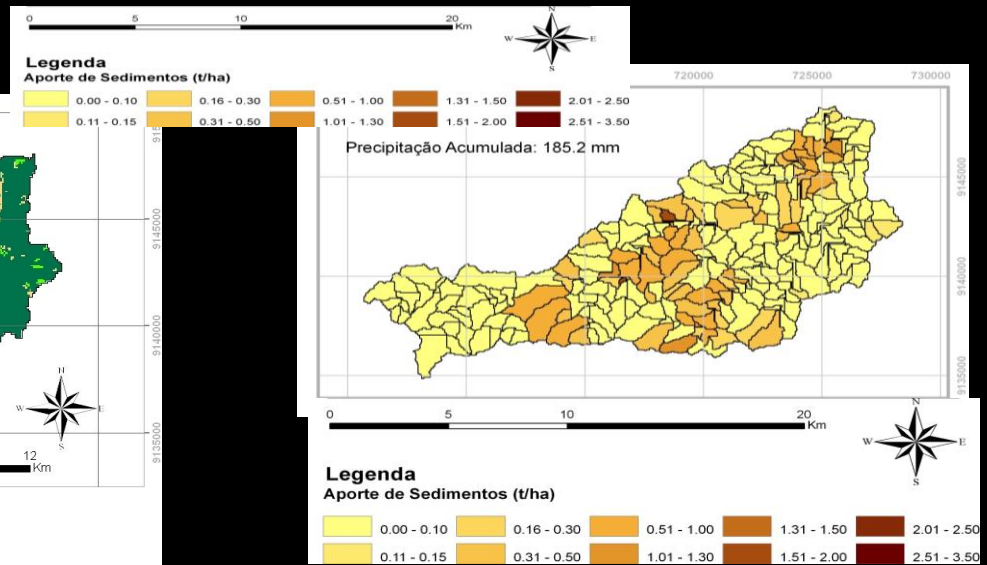
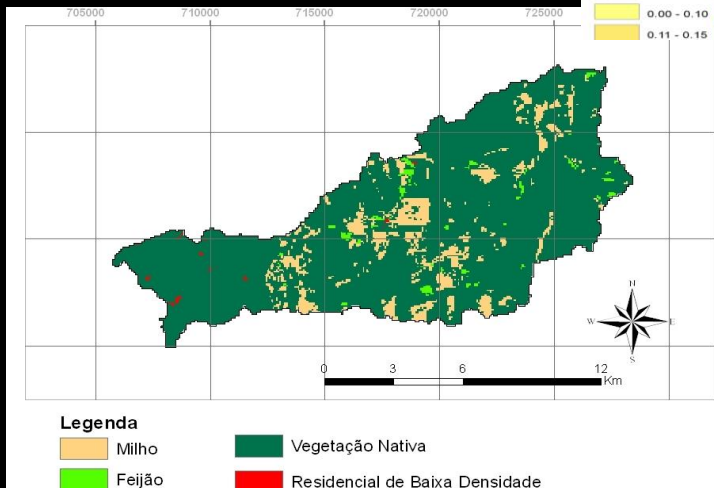
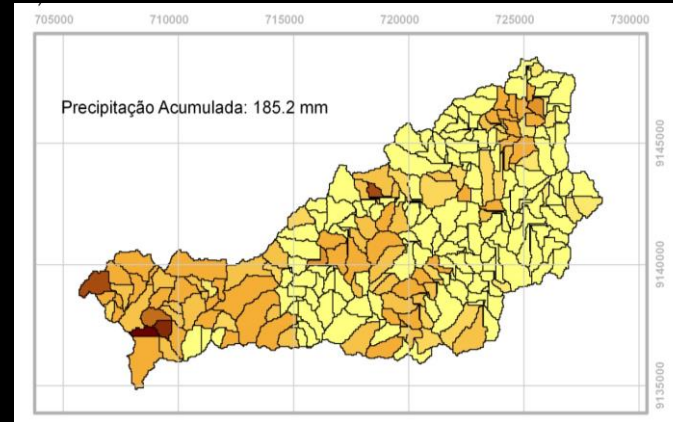
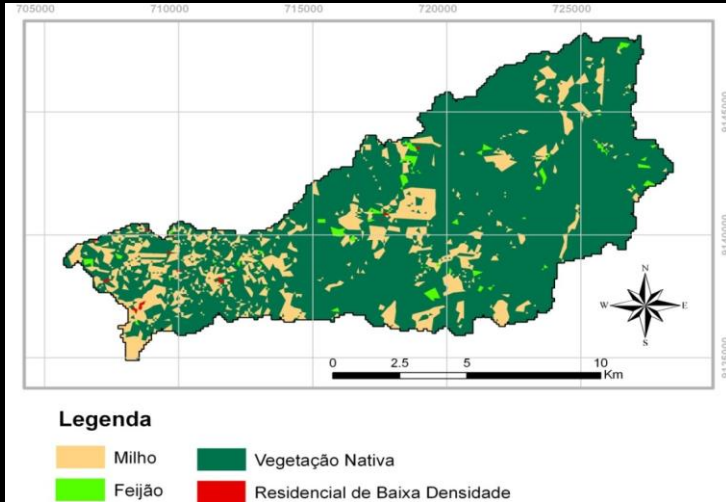
SWAT: parameterization

representative basin of Sumé

130, 34, 10 km²



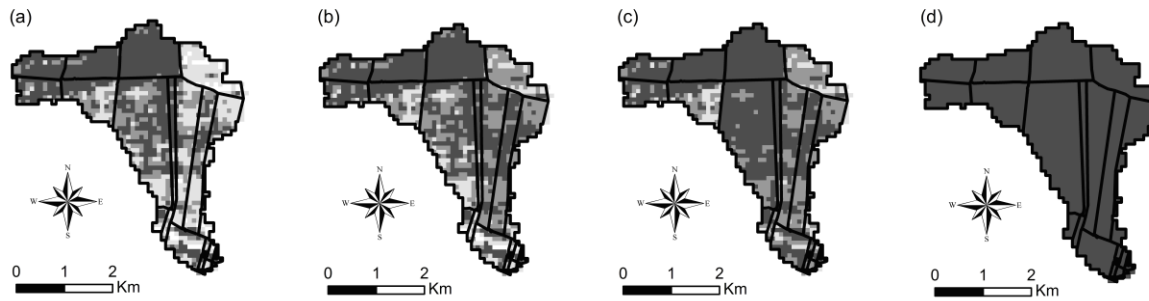
SWAT: hydrologically-based LUCC scenarios representative basin of Sumé



willingness to adopt conservation measures

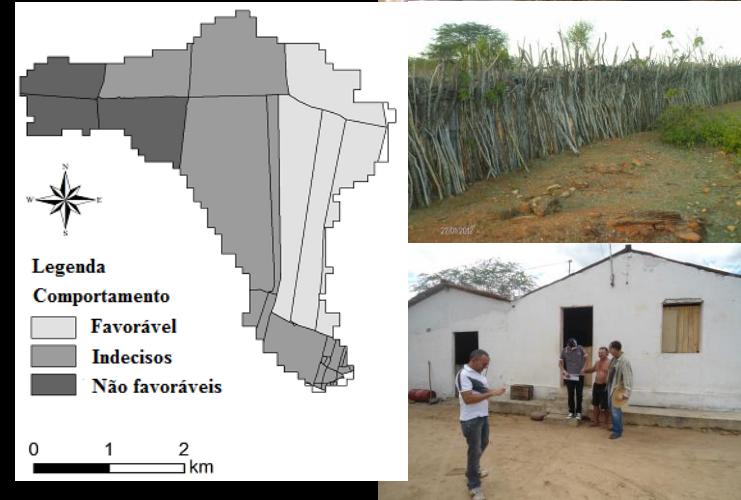
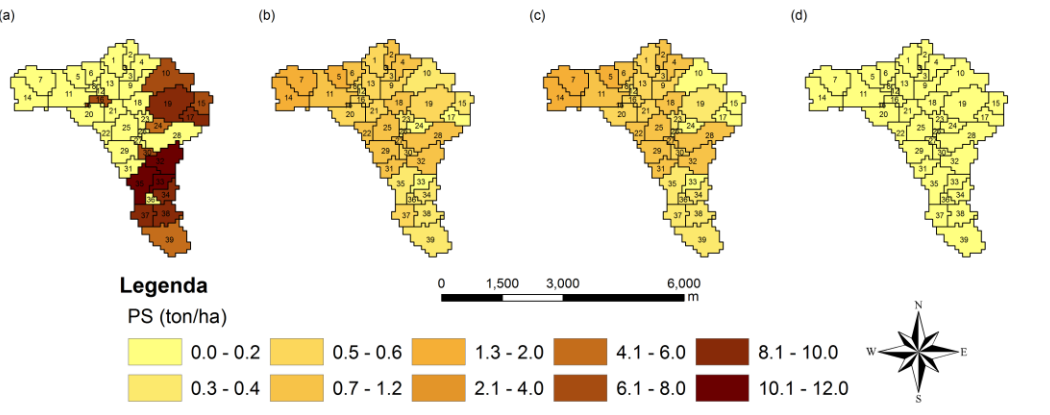
SWAT: farmer's behaviour-based LUCC scenarios

Marias Pretas basin – 11 km²

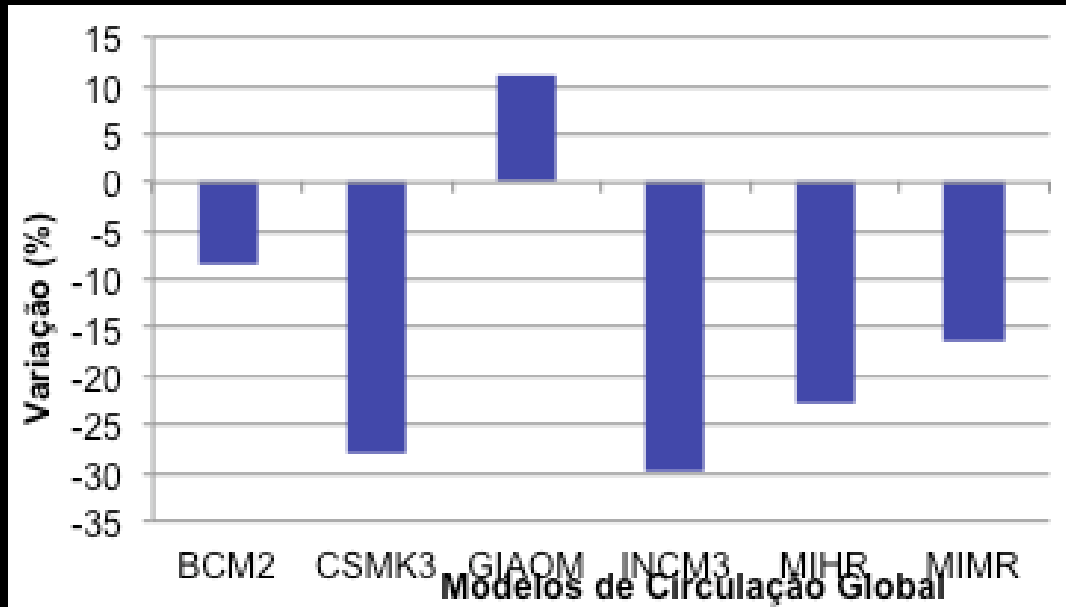


LEGENDA

- Caatinga arbórea-arbustiva fechada
- Caatinga arbórea-arbustiva aberta
- Pastagem
- Solo exposto



SWAT: climate change scenarios sediment yield change



current challenges ongoing developments

considering phenology of seasonal vegetation

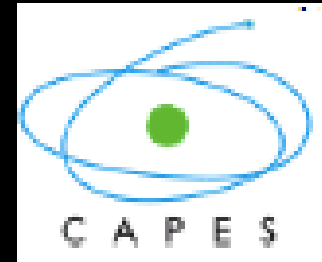
&

using remote sensing-estimated ET (SEBAL)



UNIVERSIDADE FEDERAL DE
CAMPINA GRANDE

Funding:



INCT *Clima*



Thank you!



Carlos Galvão

galvao@dec.ufcg.edu.br