

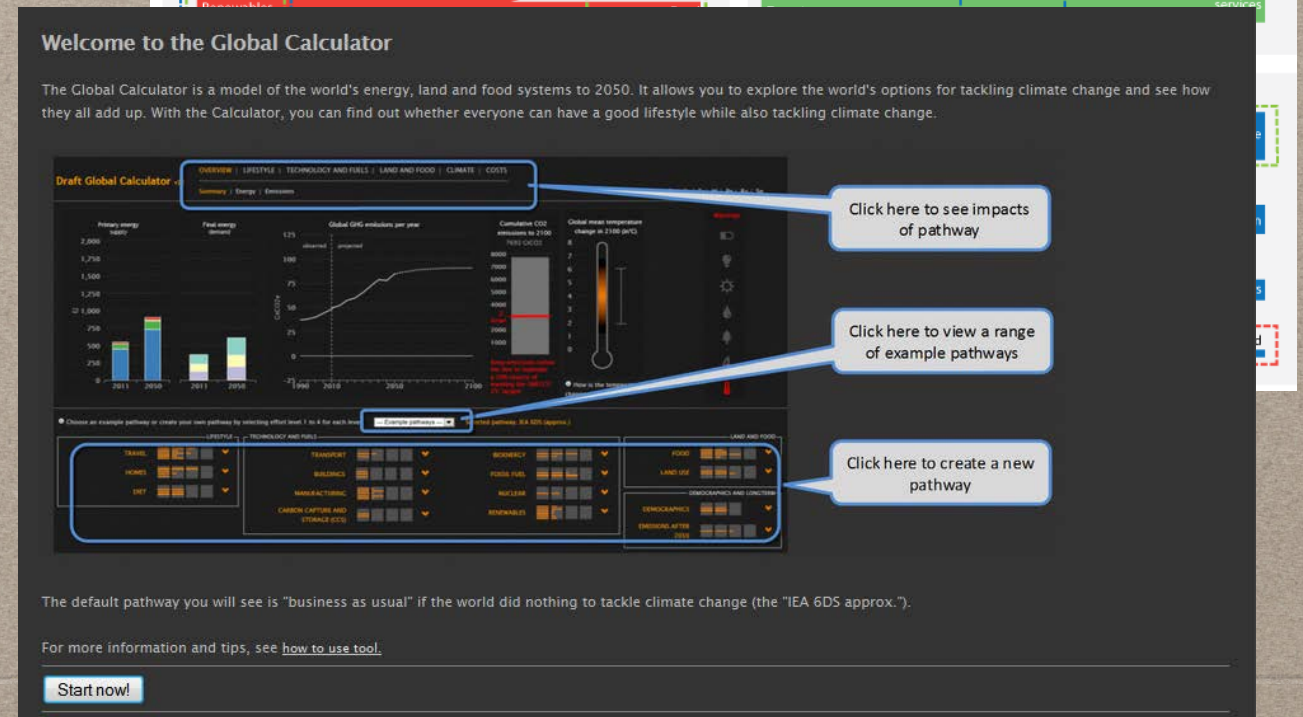
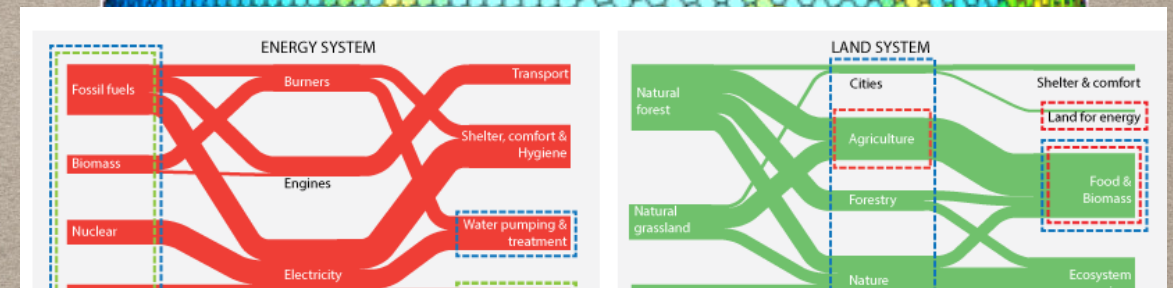
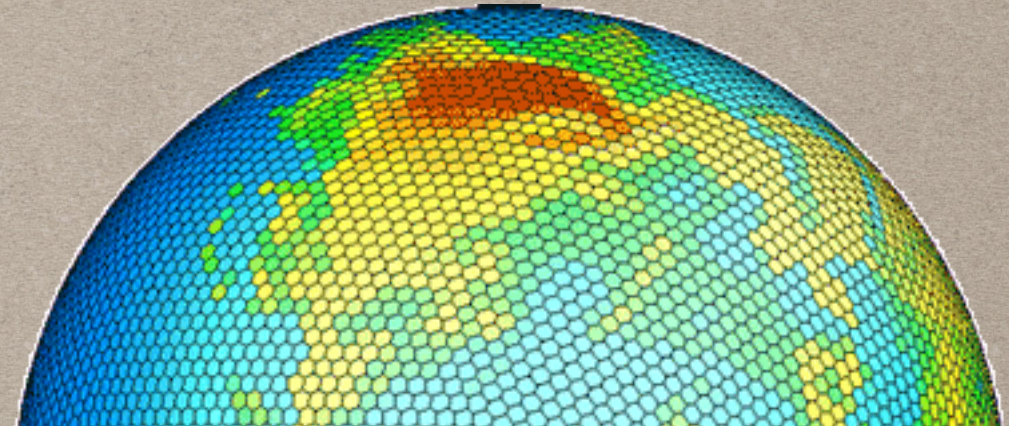


TOOLS FOR A NEXUS ASSESSMENT

LUCIE PLUSCHKE FAO
MARK HOWELLS KTH

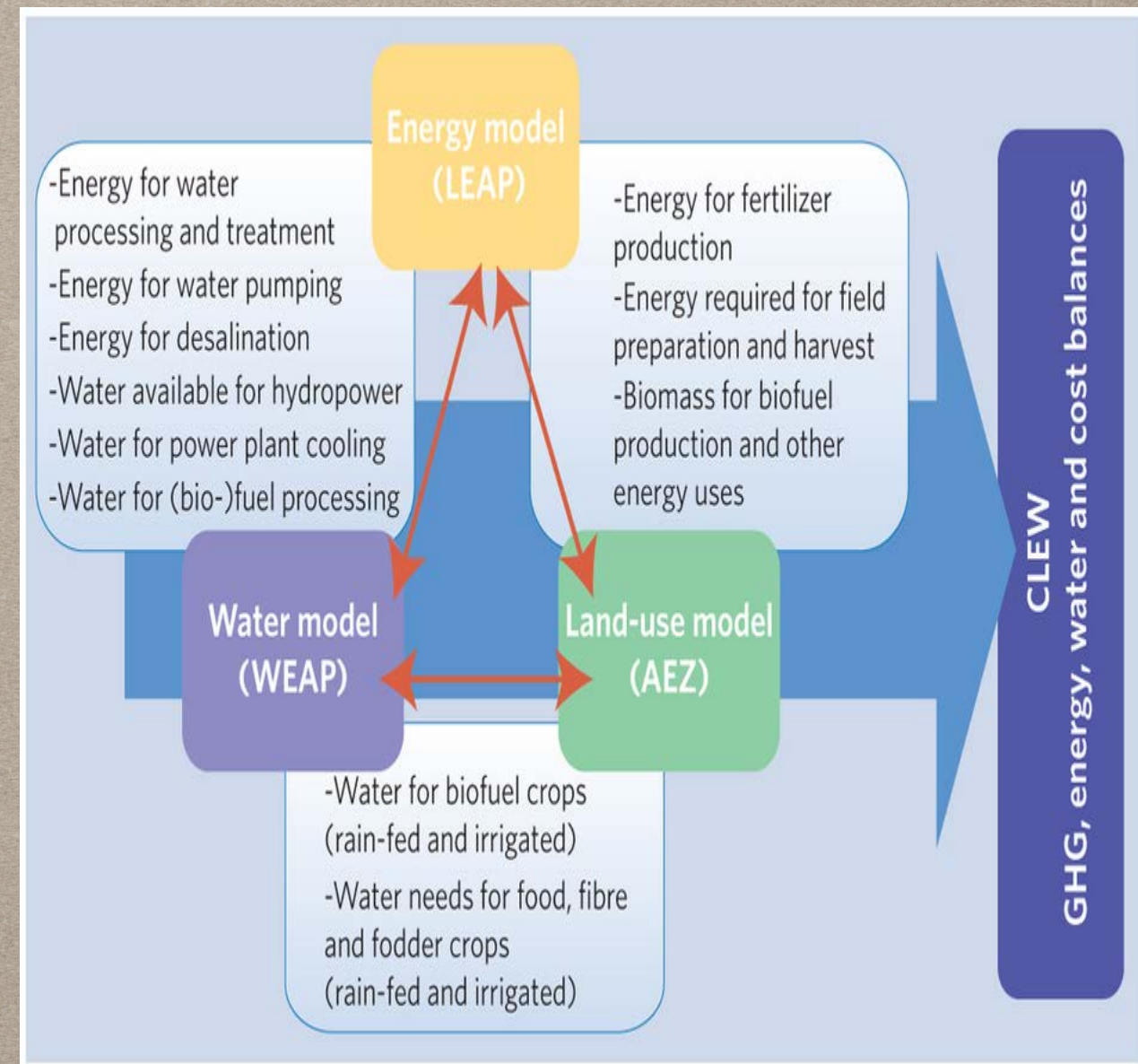
SCALE OF ANALYSIS THAT HAS BEEN UNDERTAKEN

- Global (IIASA, MIT, PBL etc. IAMS, Global Climate Calculator, GLUCOSE)
- Regional (MIT, SEI, FAO, UNECE, Basin models + regional IAMS)
- National (Mauritius, BKF, Saudi, Islands, Nicaragua, Bolivia, Uganda etc)
- Local (Arizona, California, Biofuel toolkits case studies)



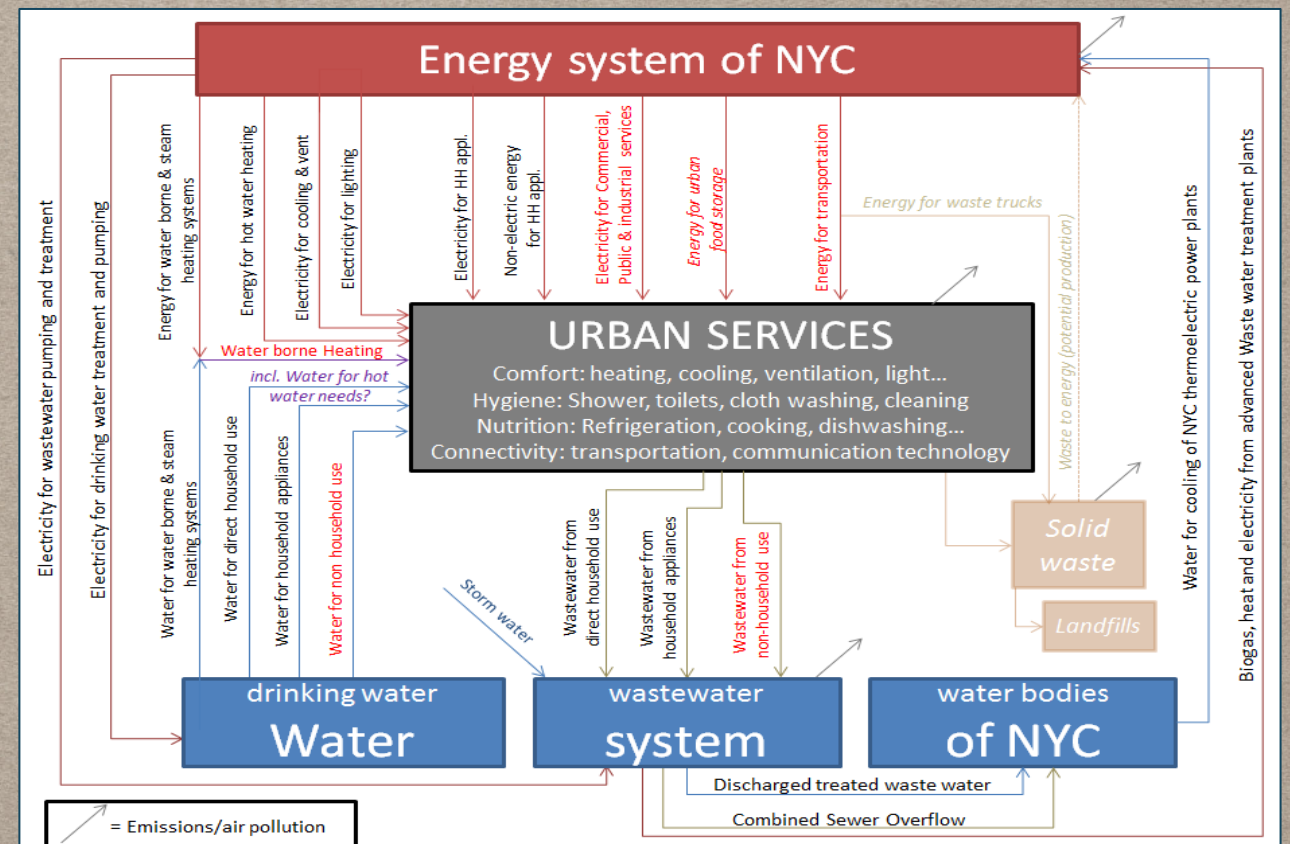
SECTORAL SCOPE OF MODELS

- Some models are '**single systems**' models that become 'soft-linked'
 - Agriculture: Cropwhat, Aquacrop, AEZ
 - Water: WEAP, Remote Sensing
 - Energy: LEAP, OSeMOSYS, TIMES/MARKAL
 - Ecosystems: Remote sensing
 - Economy: IO, CGE, etc.
- Some models are **extended systems** (TIMES/MARKAL+ WB Thirsty Water)
- Some are **combined models** (LEAP-WEAP)
- Some are single **integrated systems** models (Texas A&M, Matlab, GAMS, Glucose, Systems Dynamics)



MECHANICS OF THE TOOLS

- Qualitative Scenarios
- Systems Dynamics (i.e. physical mass and energy balances)
- Helps create consistent scenarios
- Thermodynamically, mass balances, water flows
- Cost-benefit analysis (MCDA, Accounting, Optimization etc)
- Integrated economic models



TOOL CHARACTERISTICS

WHERE TO TOOLS ASSIST:

(1) Mapping and diagnostic

- Desk study: National Indicator based; Spatial indicator; Dialogue

(2) Analysis

- Geographical scope of previous applications: Data intensity and requirements: Modelling intensity/technical capacity required: Stakeholder inclusion: Sectors and Nexus/nexus interlinkages modelled / sectors involved

(3) Evaluation (Extent of nexus interaction/stress/solution)

- Indicator based; Qualitative; Quantitative

(4) Communication

- Online tools: Info graphics; Workshops

TOOL CHARACTERISTIC: SPECIAL CHARACTERISTICS

A. Accounting

- Resource only
- Cost-benefit (using single or multi-criteria)
- Optimizing (i.e. finds 'best solution')

B. Representation of policy and scenarios

- Explicit technological detail (y/n)
- Use of concurrent / consistent drivers for resource chains

C. Resource dynamics

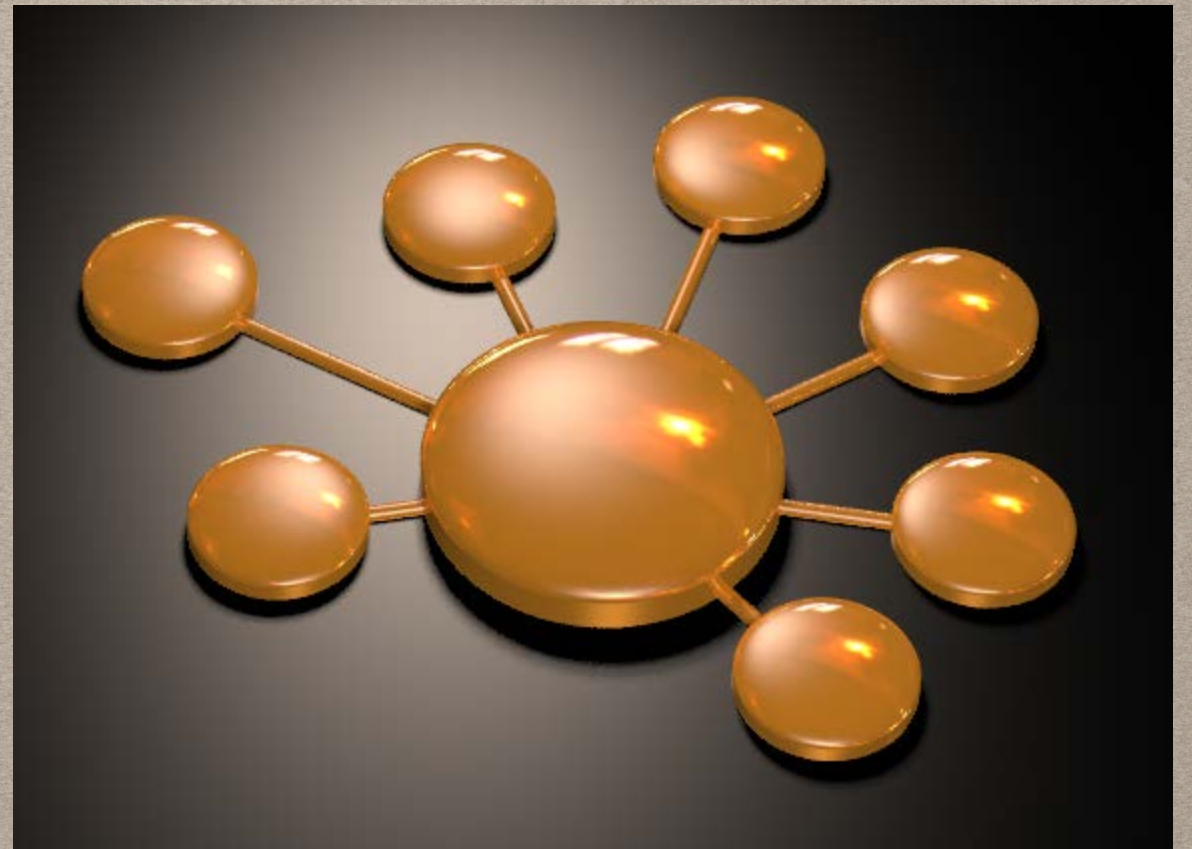
- Consider hydrological constraints (i.e. water flows)
- Consider trans-country interactions (trade/flows)
- Single 'node' (i.e. overall mass / water / energy balance)
- GIS based representation of resources

D. Other

- Please add and define

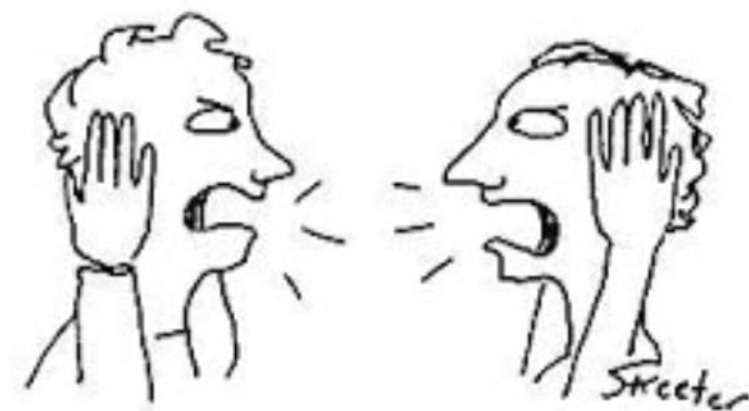
TOOLKITS: MODELS VERSUS FRAMEWORKS

- UNECE Nexus, FAO Nexus, CLEWs are frameworks. They shrink-to-fit and use tools / arguments / analysis available to support and direct future work. SEA is a rigid framework.
- LEAP-WEAP etc. are analytical models. They have strengths and limitations. Their utility is a function of the question to be answered, time on hand and data available.



COMMUNICATION, CONFLICT, DIALOGUE

*Recognising the context
in which assessments
are carried out...*



Dialogue

search ID: bstm/9