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**Program on Ecosystem Change and Society – PECS:
An important potential for information exchange with
respect to the efforts of CREATE**

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FUTURE EARTH, PECS, and CREATE



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The late Nobel Peace Prize winner Dr. Wangari Maathai was a person able to perceive the linkages between **politics, economics, ecosystem science, global change and human well-being.**

The newly initiated global change programs of “Future Earth” (<http://www.icsu.org/future-earth>) and Ecosystem Change and Society (<http://www.pecs-science.org/>) expand on the vision of Dr. Maathai and others, working to to integrate research on the stewardship of social-ecological systems and to break down barriers that have impeded understanding of **social-ecological transformations.**



CREATE should interact with PECS



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The [Programme on Ecosystem Change and Society](#) (PECS) is a new initiative within the ICSU global change programmes that aims to integrate research on the **stewardship of social—ecological systems, the services they generate and the relationships among natural capital, human wellbeing, livelihoods, inequality and poverty.**

The vision of PECS is a world where human actions have been transformed to achieve sustainable stewardship of social—ecological systems. The goal of PECS is to **generate the scientific and policy-relevant knowledge of social—ecological dynamics needed to enable such a shift, including mitigation of poverty.**

See <http://www.pecs-science.org/>

A Watershed Approach to PECS: Production vs. Water Yield and Water Quality

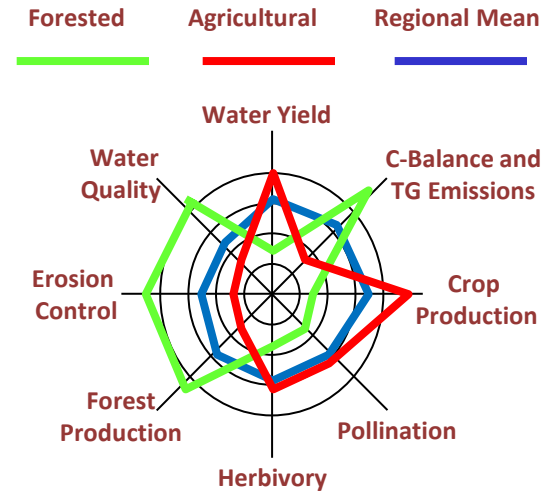
Landscape to Regional Performance
Evaluations from Models:

Statistical Models

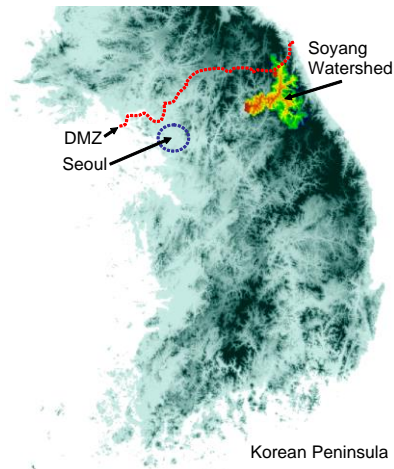
Process-based Models

Phenomenological Models

Expert-Based Models



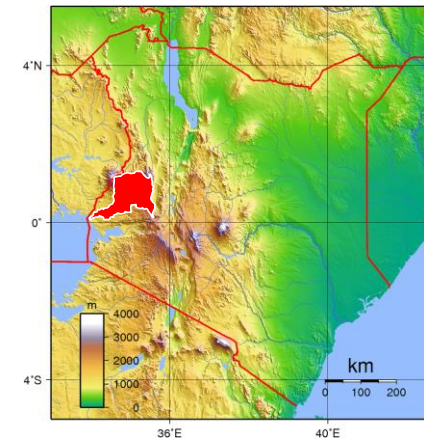
Soyang Watershed, South Korea
at 2 different scales



Hoa Binh Watershed, Vietnam
oriented to entire watershed



Nzoia River Basin, Kenya
in a selected upstream area



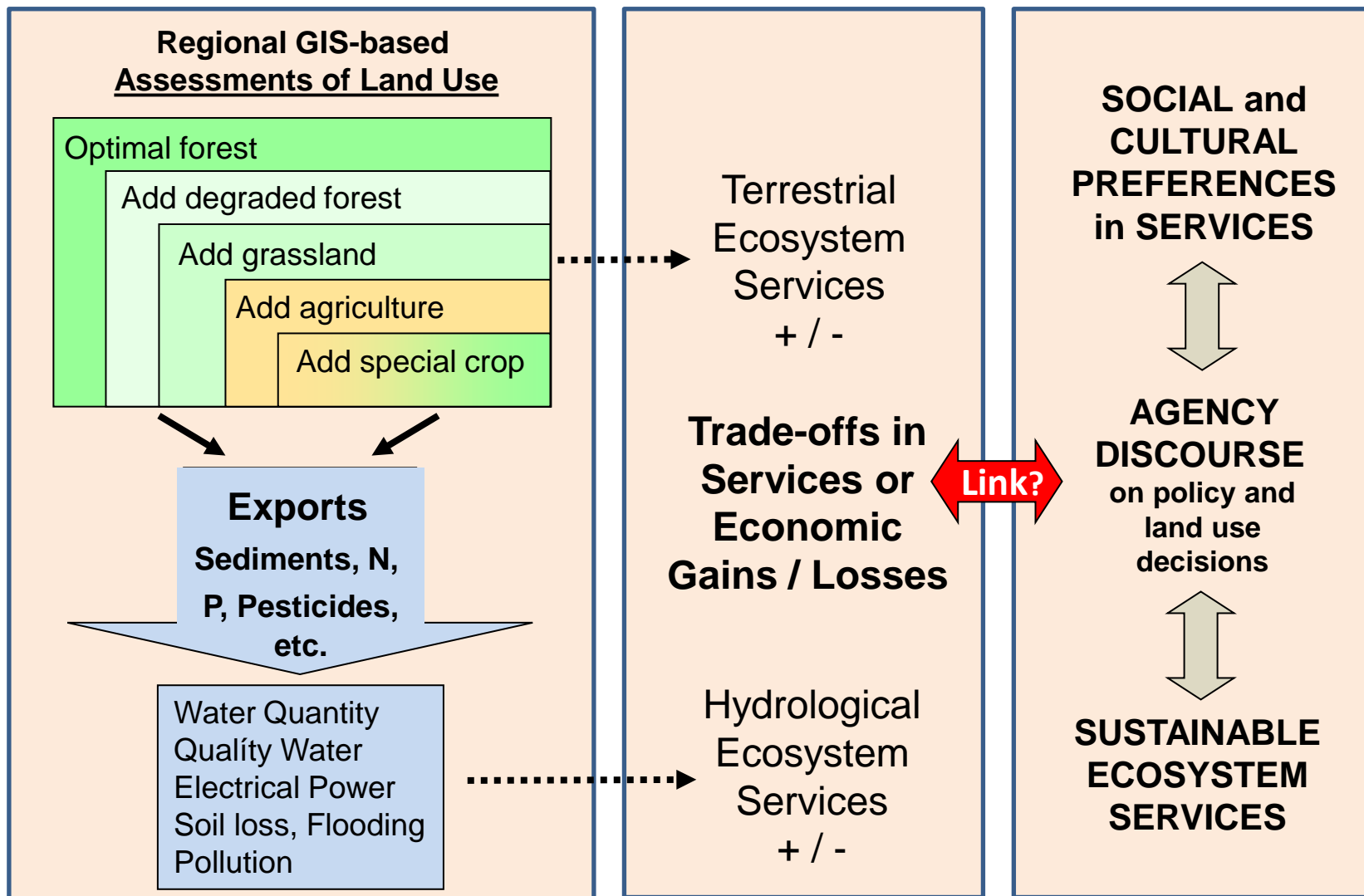
Process-based Models: SWAT,
PIXGRO, DNDC, Erosion-3D, etc.
Statistical: biodiversity, economics

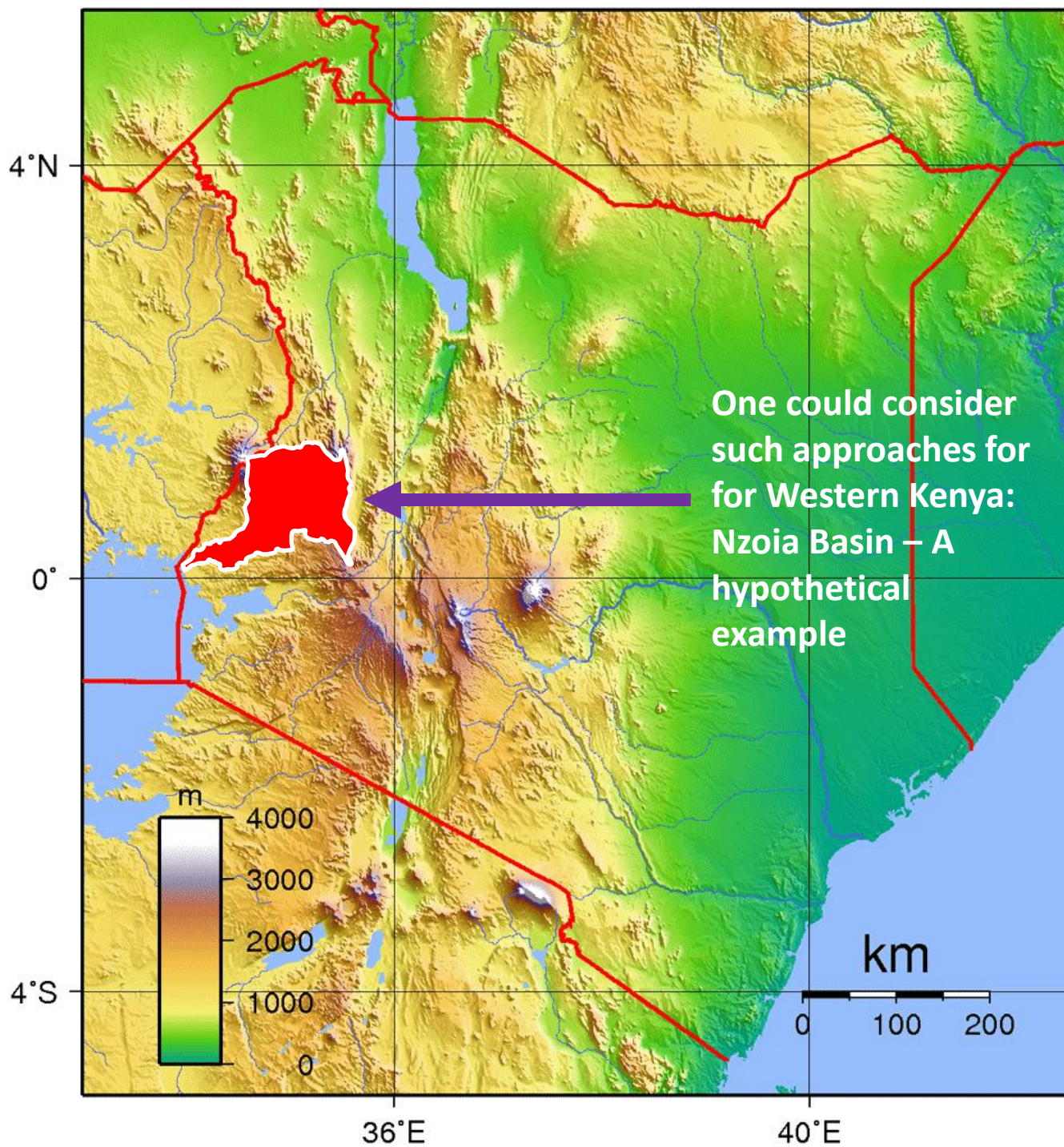
GIS with Regression Models
for Process Observations
and Statistical Models

Stakeholder and Expert-based
GIS and Statistical Models

Complex TERRain and ECological Heterogeneity (TERRECO):

Evaluating ecosystem services in production versus water yield and water quality in mountainous landscapes





One could consider such approaches for for Western Kenya: Nzoia Basin – A hypothetical example

UNIQUE PEOPLE

Protected Areas

Saiwa National Park

Mt. Elgon

Cheranganyi Hills

Water Towers

Maize
Kitale

Water Towers

Deforestation

Tugen Hills

Lake Baringo

Sugar Cane

Eldoret

Marigat

Sedimentation

Kakamega Forest

Lake Bogoria

Protected Areas

Maseno

Pollution

Flooding

Kisumu

Lake Victoria

Google earth

60 km

Image Landsat
Image © 2013 TerraMetrics

Imagery Date: 4/10/2013 0°13'17.03" N 34°25'51.38" E elev 1346 m eye alt 257.52 km

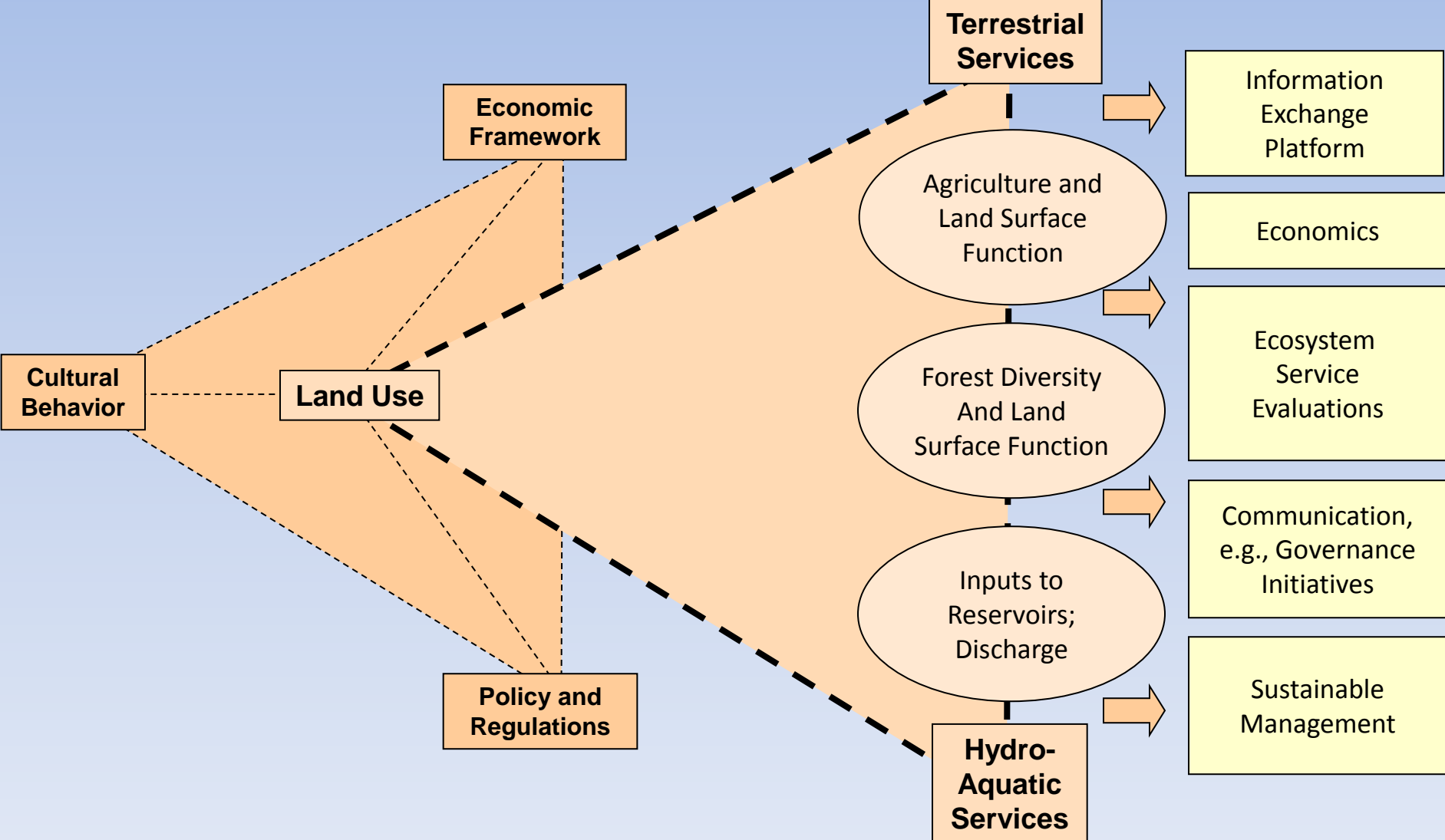
Tour Guide

The Future Focus Must Be on Management of Social-Ecological-Systems

Drivers of Change

Response

Evaluations



Consortium for Research in East African Tropical Ecosystems



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Thank you for your attention