



Satoyama: Socio-Ecological Production Landscapes for Human Well-being

Anantha Kumar Duraiappah
Ecosystem Services and Economics Unit
UNEP



What is Human Well-being?

- **It is Multi-Dimensional**
- **It is context specific**
- **It is complex**
- **Constituents and determinants are interdependent and relatively substitutable**
-



Key Principles of Human Well-being?

- **The ability to make choices**
- **The ability to decide to do basic things without constraints**
- **The ability to live in a predictable environment**
- **The ability to have some control over what happens**



Some Basic Constituents of Human Well-being

- **The ability to be adequately nourished**
- **The ability to be free from avoidable diseases**
- **The ability to have access to reliable and clean supply of water**
- **The ability to be secure from natural events like floods, landslides and droughts**
- **The ability to continue enjoying traditional cultural and spiritual rewards from natural systems**



Ecosystem Services and Human Well-being

- Ecosystem Services: The Benefits Ecosystems provide for Human Well-being (MA 2001)
- Three Main Services
 - Provisioning
 - Regulating
 - Cultural



Ecosystem Services

The benefits people obtain from ecosystems

Provisioning

Goods produced or provided by ecosystems

- ❖ Food
- ❖ Fresh water
- ❖ Fuel wood
- ❖ Genetic resources

Regulating

Benefits obtained from regulation of ecosystem processes

- ❖ Climate regulation
- ❖ Disease regulation
- ❖ Flood regulation

Cultural

Non-material benefits from ecosystems

- ❖ Spiritual
- ❖ Recreational
- ❖ Aesthetic
- ❖ Inspirational
- ❖ Educational

Supporting

Services necessary for production of other ecosystem services

- ❖ Soil formation
- ❖ Nutrient cycling
- ❖ Primary production



Ecosystem Services Trade-Offs and Synergies

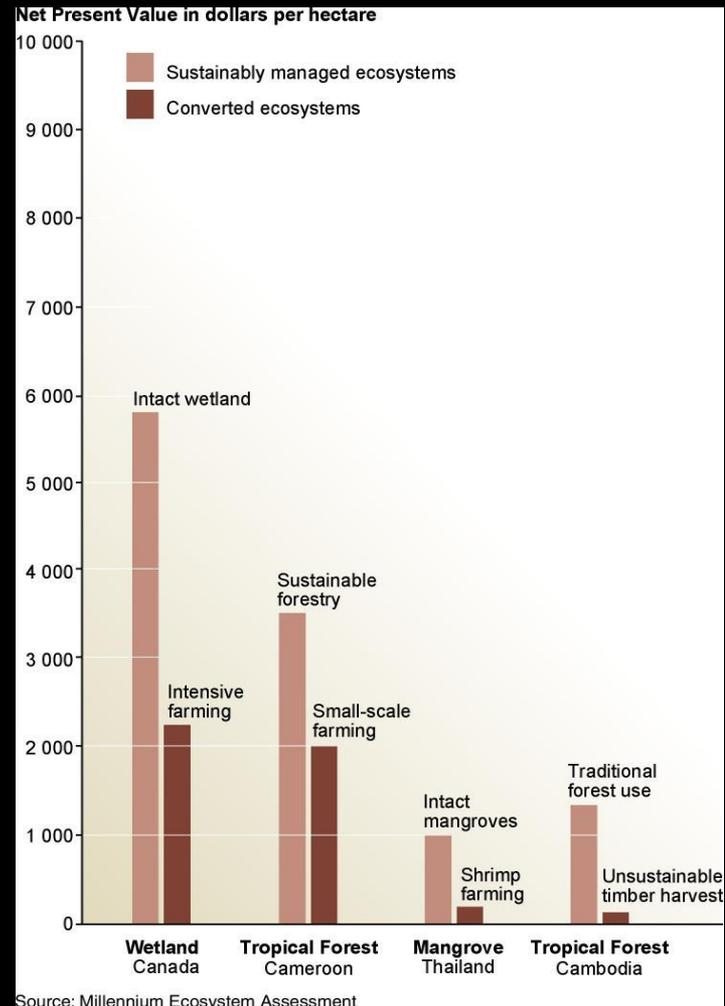
- Ecosystems are highly diverse and complex systems.
- The three categories of ecosystem services are highly inter-dependent and excessive extraction of one service leads to deteriorations in the other services.
Example: excessive extraction of timber (provisioning service) has been found to cause landslides, floods and reductions in the supply of clean water (deterioration of regulating and cultural service).
- A management approach is needed whereby the natural synergies among the various services are respected and strategies designed that reinforce these inter-dependencies.



Decline in ecosystem services often is caused by lack of Total Economic Value



- The total economic value associated with managing ecosystems more sustainably is often higher than the value associated with conversion
- Conversion may still occur because private economic benefits are often greater for the converted system





On the Relationship between Human Well-being and Ecosystem Services

- Each of the three groups of ecosystem services provides valuable constitutive elements of human well being. The ability for individuals to achieve the various constituents and determinants of well-being are directly influenced by their ability to access and use ecosystem services in a fair and equitable manner.
- The fact that various stakeholders use ecosystem services in various ways and that these stakeholders have different degrees of dependency on these services is critical. Some may have clear substitutes while others have limited options.
- There will be **trade-offs** to be made between ecosystem services as well as among the various constituents of well being.



Human Well-being - Ecosystem Services Links

PROVISIONING

- Food
- Timber
- Pharmaceuticals
- Fuels/energy
- Fiber
- Minerals
- Fresh water



REGULATING

- Purification of air and water
- Hydrological regulation
- Detoxification and decomposition of wastes
- Nutrient cycling
- Pollination of plants
- Crop pest control
- Maintenance of biodiversity
- Climate regulation



CULTURAL

- Spiritual and social values
- Aesthetic values
- Education and scientific value

Constituents and Determinants of Wellbeing

Being able to be adequately nourished.

Being able to be free from avoidable disease.

Being able to live in an environmentally clean and safe shelter.

Being able to have adequate and clean drinking water.

Being able to have clean air.

Being able to have energy to keep warm and cook.

Being able to use traditional medicine.

Being able to have cultural and spiritual practices using ecological systems respected.

Being able to cope against extreme natural events like floods, tropical storms and land slides.

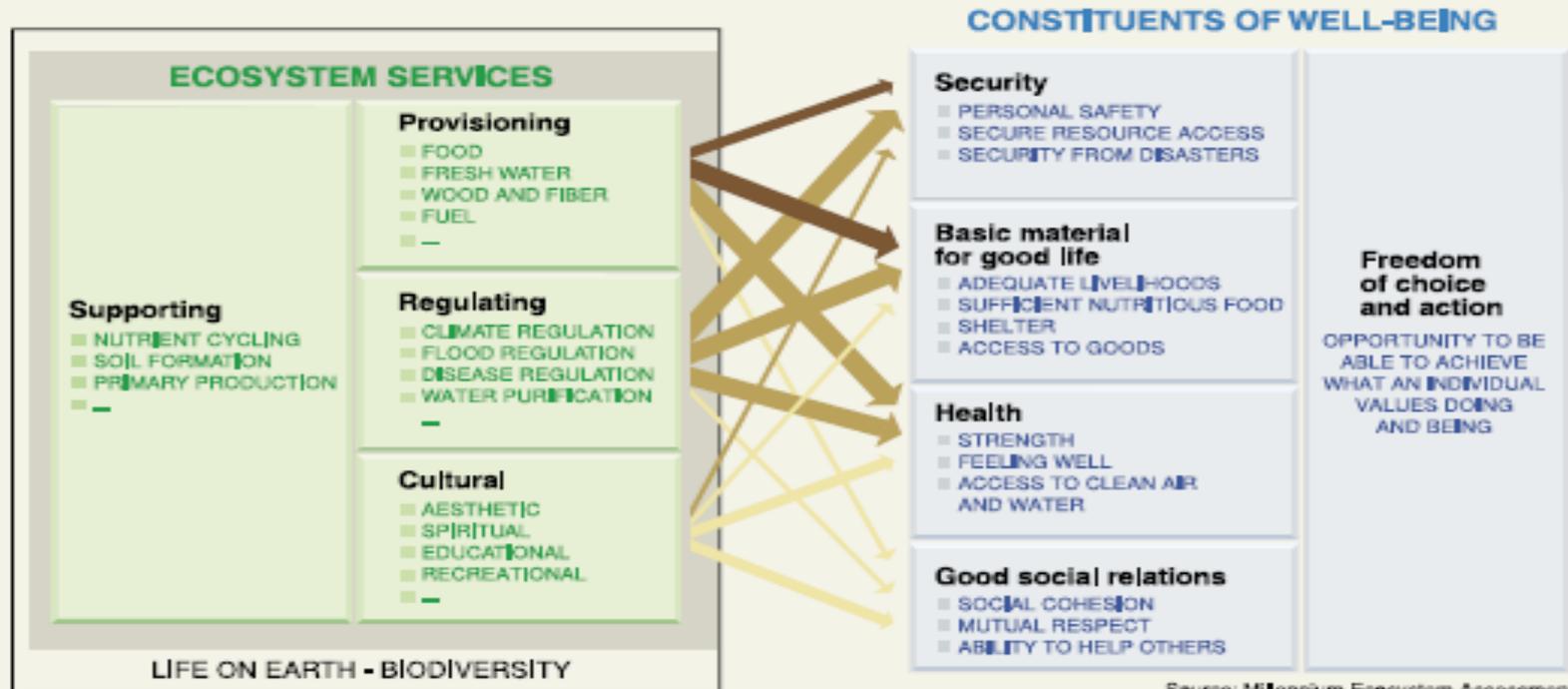
Being able to achieve the necessary material minimum for a good life- secure and adequate livelihoods



Ecosystem services and human well-being



LINKAGES BETWEEN ECOSYSTEM SERVICES AND HUMAN WELL-BEING



Source: Millennium Ecosystem Assessment

ARROW'S COLOR
Potential for mediation by socioeconomic factors

- Low
- Medium
- High

ARROW'S WIDTH
Intensity of linkages between ecosystem services and human well-being

- Weak
- Medium
- Strong



Key Points

- Human Well-being is multi-dimensional
- Preference rankings of constituents of well-being differ across individuals
- Preferences for bundle of ecosystem services differ across individuals
- Trade-offs are part of the decision making process
- Deliberations on the trade-offs to be guided by economic valuation but final decision is a social deliberative process



Key components of a Satoyama Landscape: Outcomes from the 2nd National Report Authors meeting

- Mosaic of different ecosystem types (mixed forests, rice paddy fields, dry rice field, grasslands, streams, ponds, and reservoirs)
- Producing a bundle of ecosystem services (Food, Fodder, fuelwood, water, flood regulation etc))
- For key constituents of human well-being (nourishment, security, material wealth, health, cultural values etc)



Satoyama and Biodiversity

Key Points

- Biodiversity determined by the production and cultural/social landscape
- Biodiversity influenced by the bundle of ecosystem services to be produced for the key constituents of well-being
- The key question to ask is if the level of biodiversity under Satoyama will be lower or higher than if under different management approach. The issue of trade-offs emerges again!



Key Questions for an International Satoyama Initiative

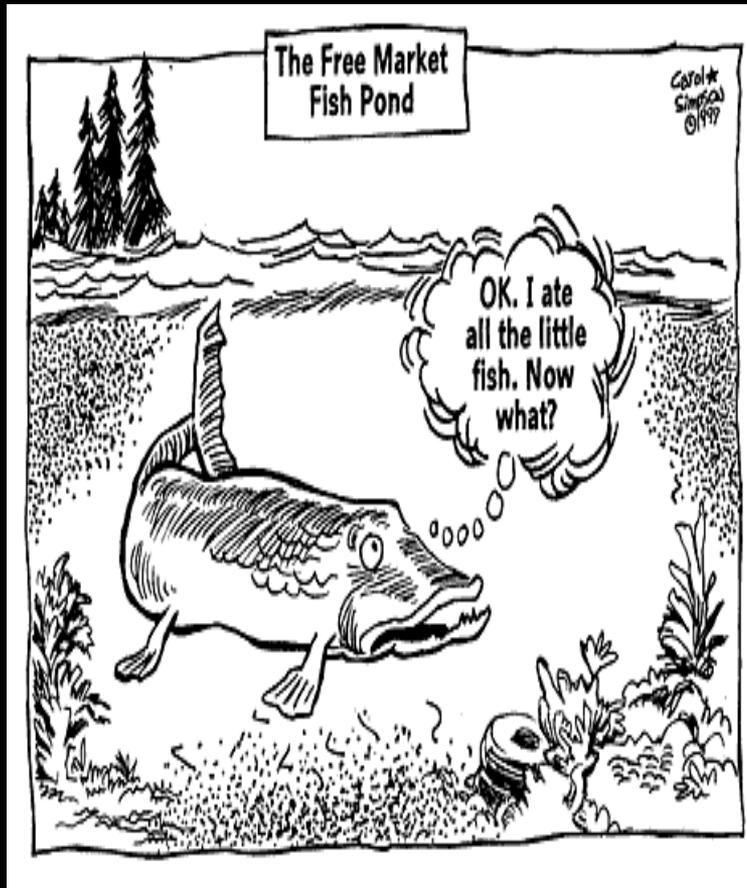
1. How individuals depend on ecosystems and ecosystem services for achieving some of the very basic constituents of well-being?
2. What are the key trade-offs and synergies?
3. What are the barriers and drivers that prevent individuals from using ecosystem services to improve their well-being?
4. What are the policy options to remove the barriers or redesign drivers to allow individuals to improve their well-being?



The Forgotten Society

- The 1.2 billion people live on less than \$1 per day
- The 3 Billion people live on less than \$2 per day
- The 1 billion people do not have access to clean water
- The more than 2 billion people have no access to sanitation
- The 1.3 billion who are breathing air below the standards considered acceptable by WHO
- The 700 million people suffer from indoor air pollution due to biomass burning

Satoyama and Sustainability– One Society One Planet



How can Sustainability be secured?

Sustainability needs to be secured through a social process involving all stakeholders in the communities.

It should be a deliberative process that sets a dividing line between the moral and ethical values of preserving and managing the system in a sustainable manner.