LA FORÊT EUROPÉENNE : ENTRE PASSÉ ET FUTUR

6 & 7 mai

colloque

FONDATION
Singer-Polignac

Identifying forest services: understanding their role and impacts

Davide Pettenella

8 DECENT WORK AND ECONOMIC GROWTH

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

15 LIFE ON LAND

An increasing attention towards the analysis if Ecosystem services and related supporting values

Source: Birk, modif. da Haines-Young and Potschin 2009, modif da Pettenella, 2021

The 3 categories of intrinsic, instrumental, and relational values

Human wellbeing
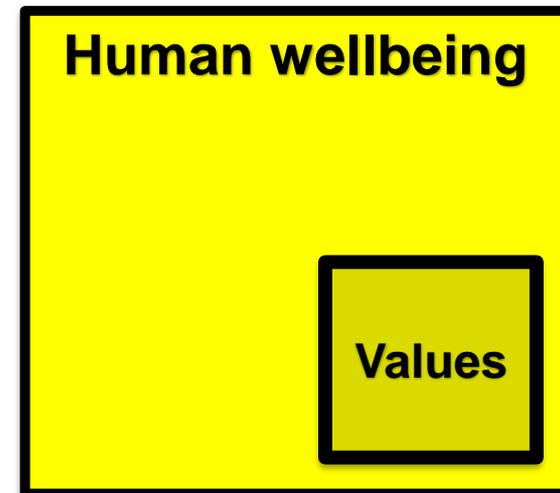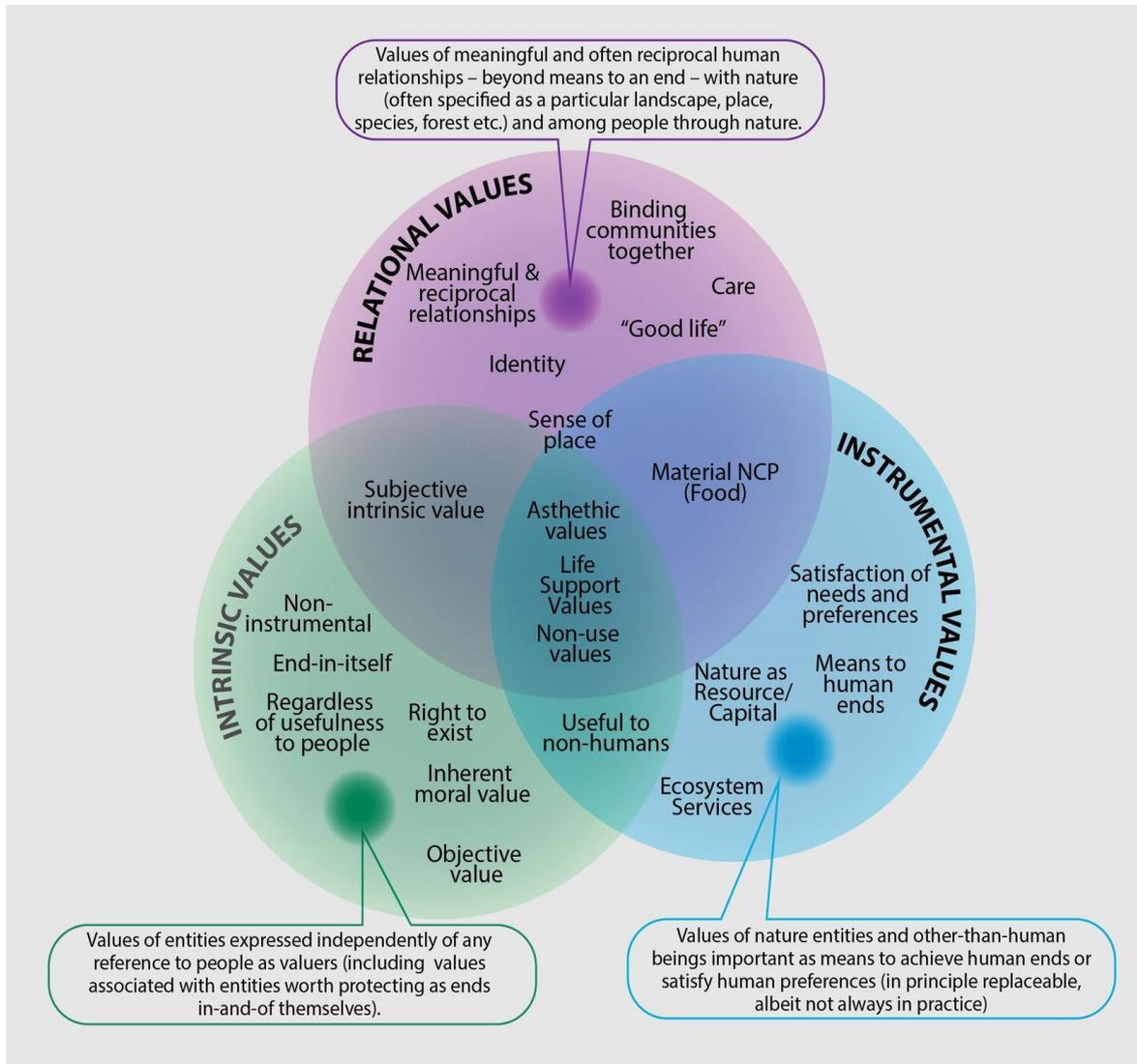
Values

Austin Himes et al. (2024) Why nature matters: A systematic review of intrinsic, instrumental, and relational values. *BioScience*, Volume 74, Issue 1, January 2024, Pages 25–43, https://doi.org/10.1093/biosci/biad109

TESAF Dipartimento Territorio e Sistemi Agro-Forestali

UNIVERSITÀ DEGLI STUDI DI PADOVA

«Living in harmony with nature»:
from, *in*, *with*, *as* nature: 4 "life frames"
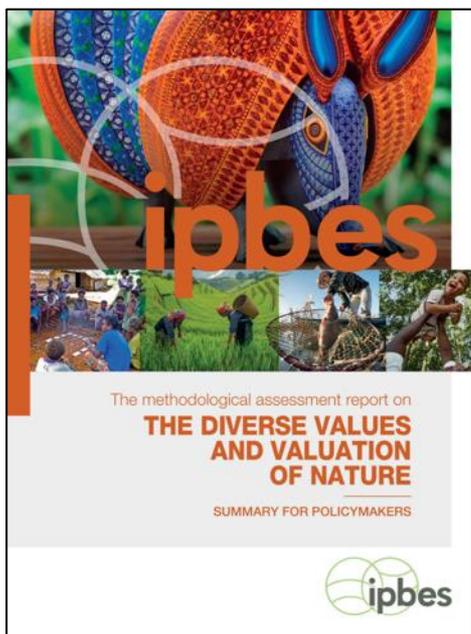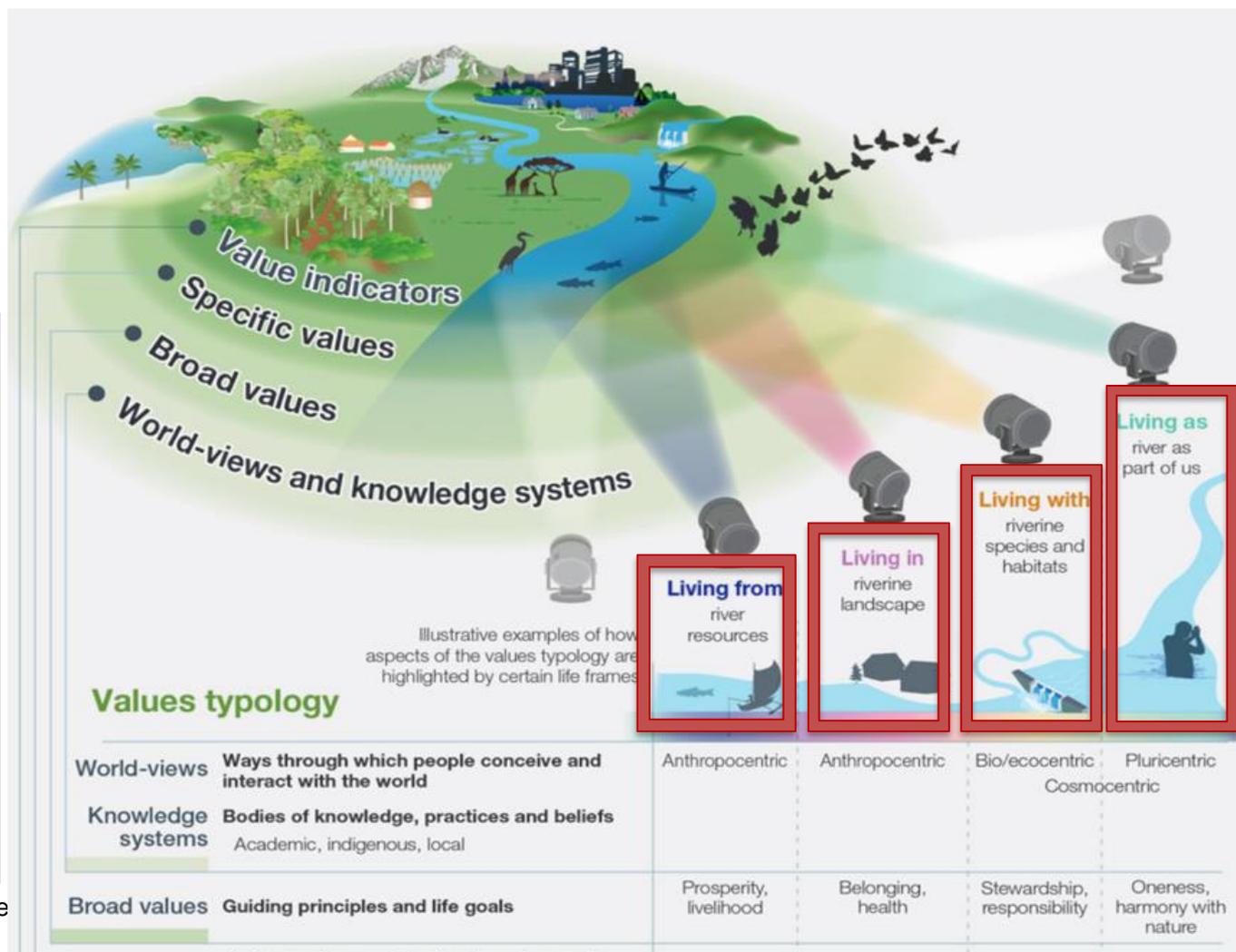
Living from nature: The ability of nature to provide resources to support people's livelihoods, needs, and desires.

Reference values: prosperity, livelihood

Traditional forest products (wood, NWFP, water, …)

… but also, Nature-Based Solutions

Living in nature: the importance of nature as an environment for people's sense of place and identity.

Reference values: stewardship, responsibility

Promoting health and wellbeing through urban forests – Introducing the 3-30-300 rule
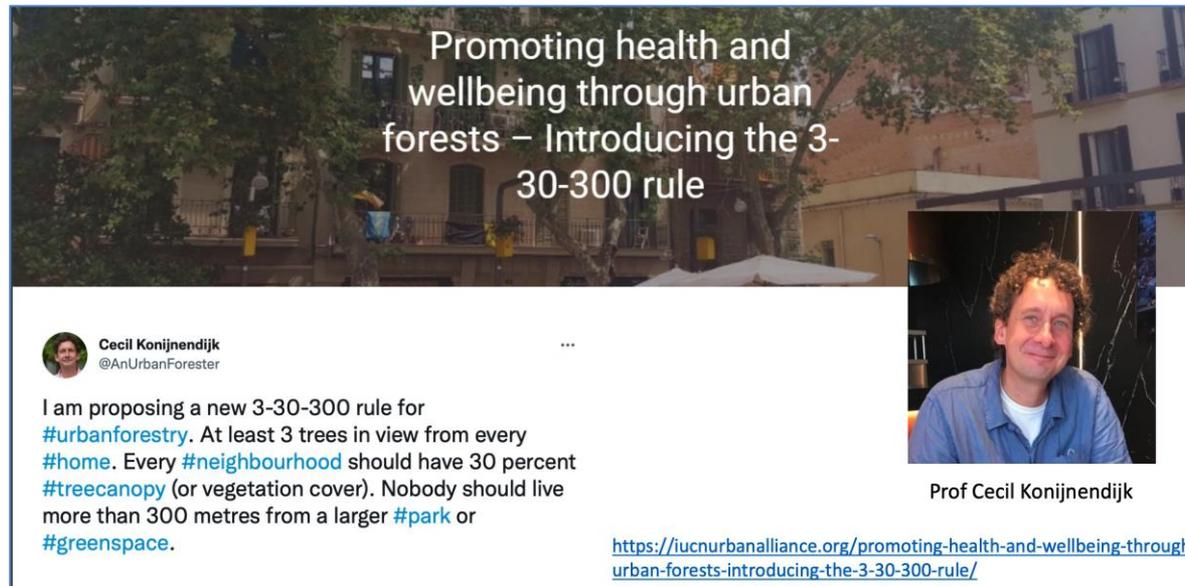
Cecil Konijnendijk
@AnUrbanForester

I am proposing a new 3-30-300 rule for #urbanforestry. At least 3 trees in view from every #home. Every #neighbourhood should have 30 percent #treecanopy (or vegetation cover). Nobody should live more than 300 metres from a larger #park or #greenspace.

Prof Cecil Konijnendijk

https://iucnurbanalliance.org/promoting-health-and-wellbeing-through-urban-forests-introducing-the-3-30-300-rule/

Living with nature: the inherent right of every species to thrive regardless of human needs.

Reference values: protection, belonging, "One Health"
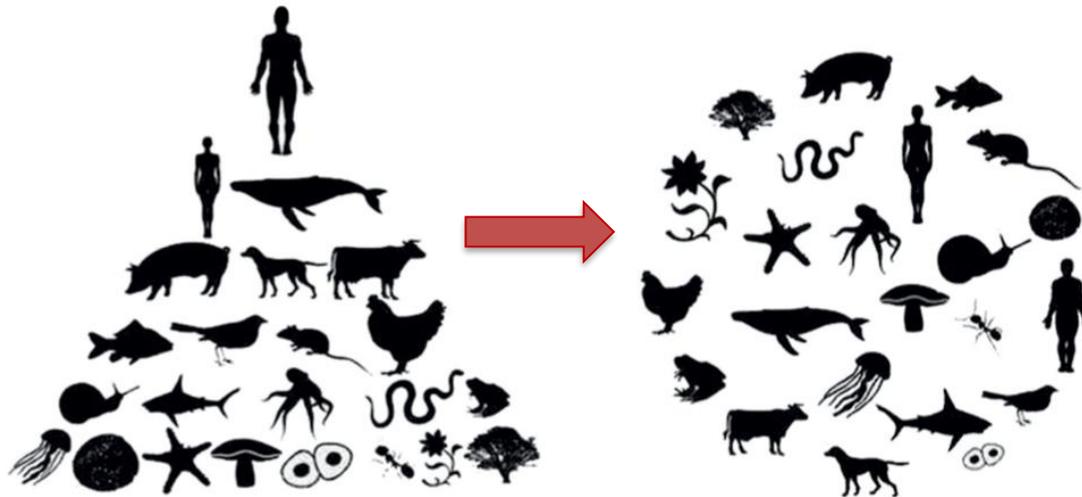
Fonte: C.Konijnendijk, D.Devkota, S.Mansourian, C.Wildburger (eds), 2023. Forests and Trees for Human Health: Pathways, Impacts, Challenges and Response Options. A Global Assessment Report.
IUFRO, CFP.

Recognising the rights of nature
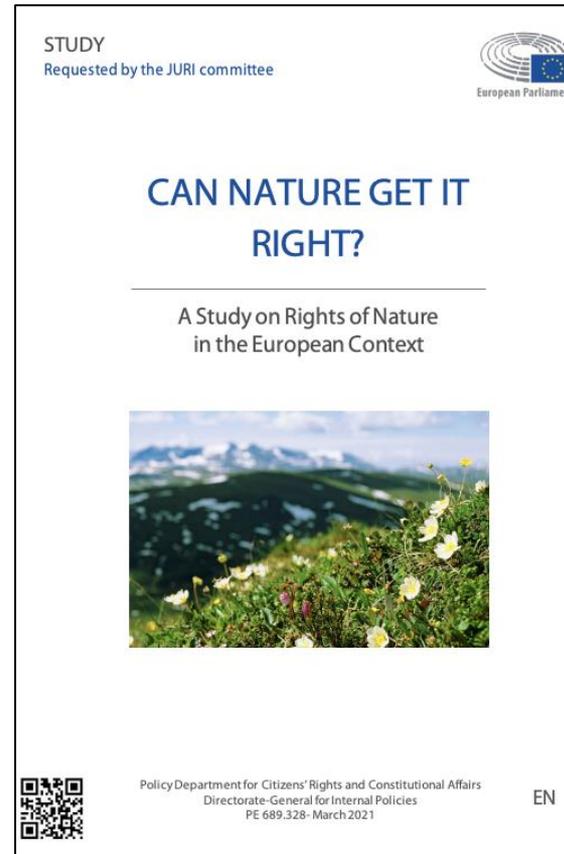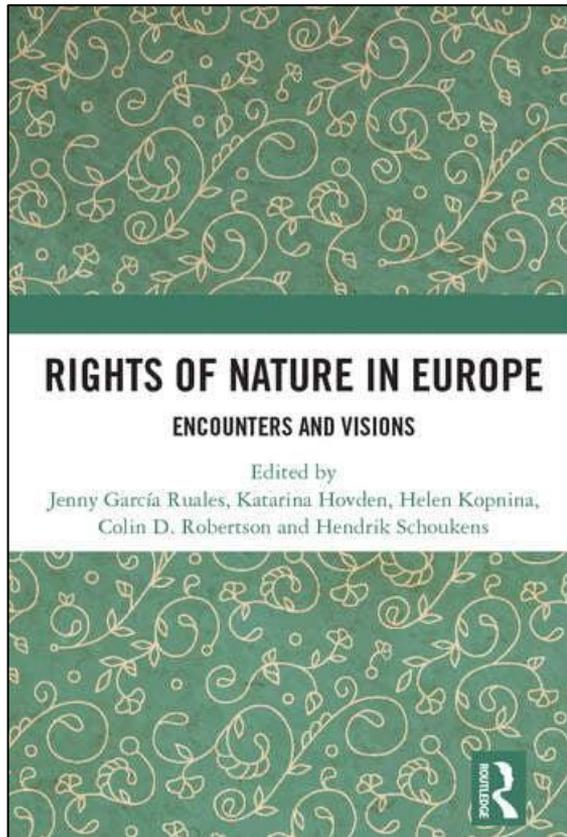
https://www.europarl.europa.eu/RegData/etudes/STUD/2021/689328/IPOL_STU(2021)689328_EN.pdf

Living as nature: the natural world as a physical, mental, and spiritual part of oneself.

Reference values: oneness, harmony, "One Earth"

The Millenium Ecosystem Assessment (MEA) classification: the benefis

Source: Millennium Ecosystem Assessment
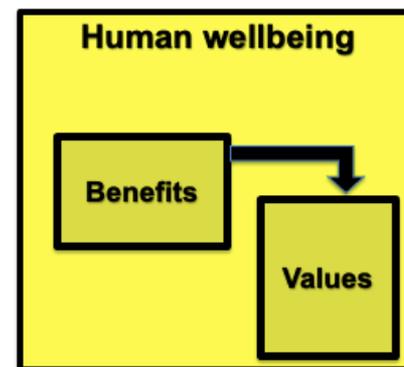
CONSTITUENTS OF WELL-BEING

ECOSYSTEM SERVICES

Provisioning
- FOOD
- FRESH WATER
- WOOD AND FIBER
- FUEL
- ...

Supporting
- NUTRIENT CYCLING
- SOIL FORMATION
- PRIMARY PRODUCTION
- ...

Regulating
- CLIMATE REGULATION
- FLOOD REGULATION
- DISEASE REGULATION
- WATER PURIFICATION
- ...

Cultural
- AESTHETIC
- SPIRITUAL
- EDUCATIONAL
- RECREATIONAL
- ...

LIFE ON EARTH - BIODIVERSITY

Security
- PERSONAL SAFETY
- SECURE RESOURCE ACCESS
- SECURITY FROM DISASTERS

Basic material for good life
- ADEQUATE LIVELIHOODS
- SUFFICIENT NUTRITIOUS FOOD
- SHELTER
- ACCESS TO GOODS

Health
- STRENGTH
- FEELING WELL
- ACCESS TO CLEAN AIR AND WATER

Good social relations
- SOCIAL COHESION
- MUTUAL RESPECT
- ABILITY TO HELP OTHERS

Freedom of choice and action

OPPORTUNITY TO BE ABLE TO ACHIEVE WHAT AN INDIVIDUAL VALUES DOING AND BEING

Source: Millennium Ecosystem Assessment

ARROW'S COLOR
Potential for mediation by socioeconomic factors
- Low
- Medium
- High
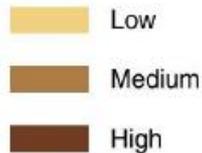
ARROW'S WIDTH
Intensity of linkages between ecosystem services and human well-being
- Weak
- Medium
- Strong
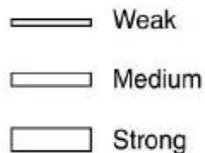
The Millenium Ecosystem Assessment (MEA) classification of Ecosytem Services

TESAF Dipartimento Territorio e Sistemi Agro-Forestali

UNIVERSITÀ DEGLI STUDI DI PADOVA

Ecosystem Services
in the forestry sector

Life support

Soil formation
Nutrient cycle
Primary production
…

➡

Provisioning

Wood, bio-energy, water, food and feed (NWFP), …

➡

Bioeconomy
Biomass «traditional» and innovative materials and products

Living from
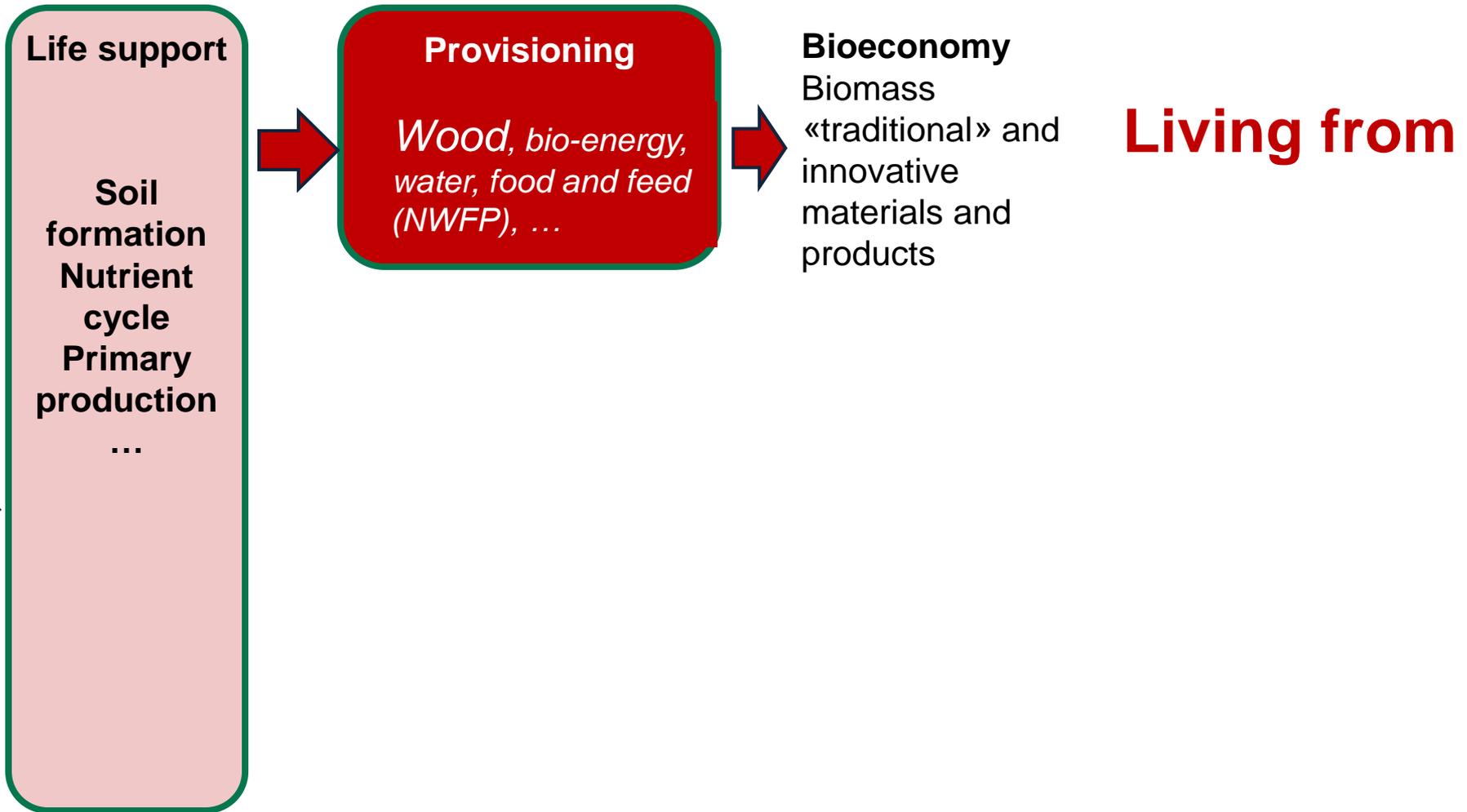
Old and new wood value chains
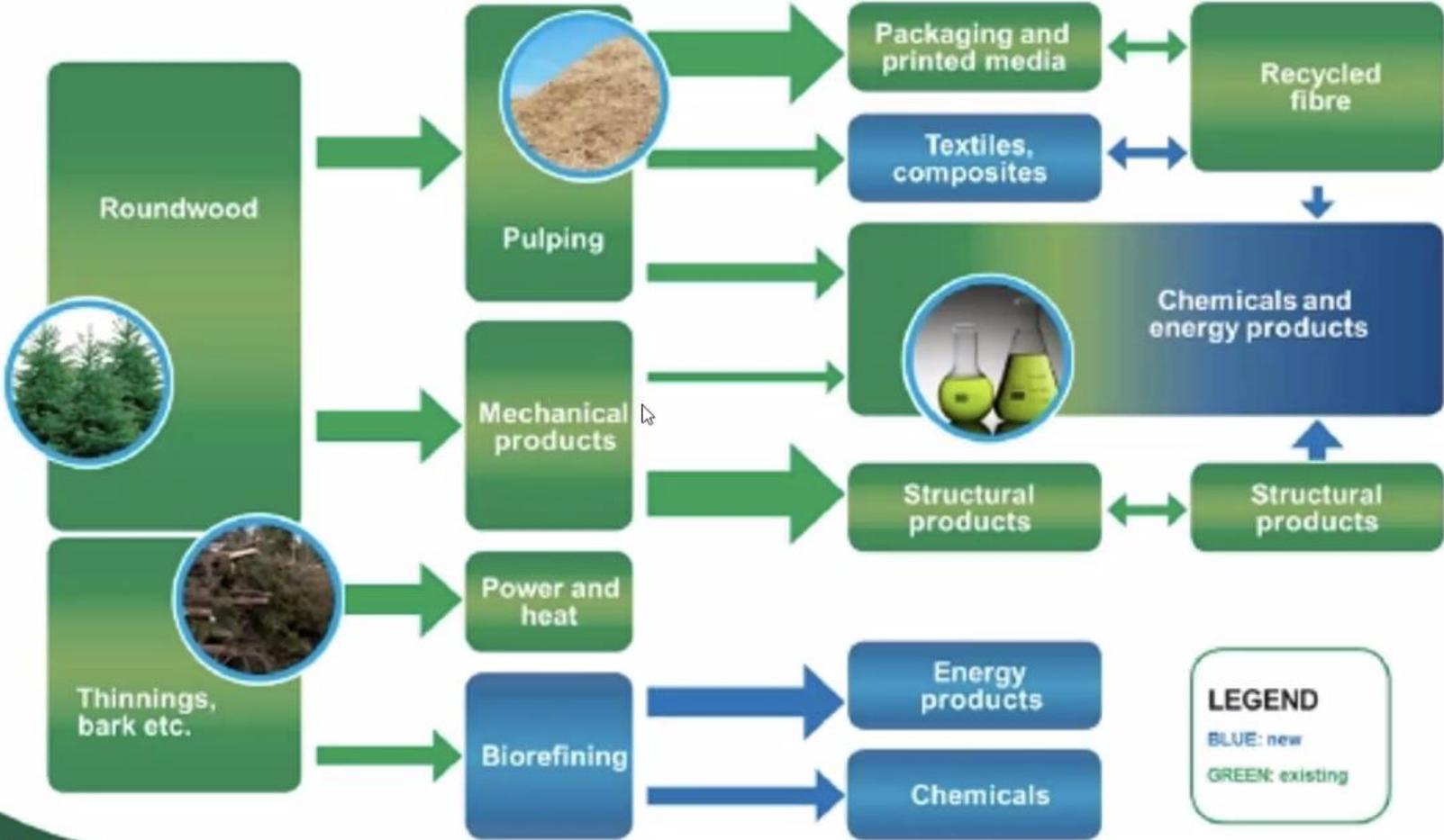
5 new products for the bioeconomy
(excluding the energy use of biomass)

Food and Agriculture Organization of the United Nations

FOREST PRODUCTS IN THE GLOBAL BIOECONOMY

Enabling substitution by wood-based products and contributing to the Sustainable Development Goals

Source: FAO, 2022

5 new sectors for the bioeconomy
(excluding the energy use of biomass)

- ## Engineered wood products

  Cross-Laminated Timber (CLT or X-LAM): +37% annual growth (2014-20), NLT, glulam, CLT, MPP, LVL, …

NEW EUROPEAN BAUHAUS

beautiful | sustainable | together

5 new sectors for the bioeconomy
(excluding the energy use of biomass)

- Engineered wood products

  Cross-Laminated Timber (CLT or X-LAM): +37% annual growth (2014-20), NLT, glulam, CLT, MPP, LVL, …

- RCF (Recycled Cellulose Fibers) or MMCF (ManMade Cellulose Fibres); biotextiles: viscose, Lyocell, Tence, Modal, …

Viscose cotton

TESAF Dipartimento Territorio e Sistemi Agro-Forestali

UNIVERSITÀ DEGLI STUDI DI PADOVA

- Panels, foams and insulants
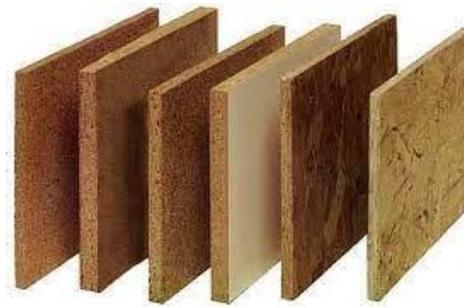
- Bio-plastics and PWC (Plastic-Wood Composite)
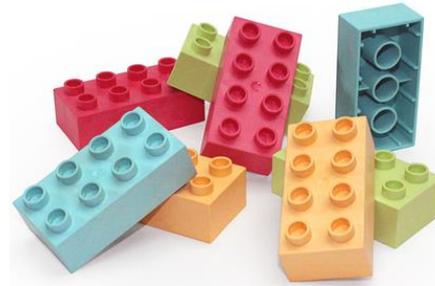
- Packaging (see new regulations forbiting single use plastic containers in EU by 2030)

Ecosystem Services (ES) and Life Frames

Source: MEA, 2005

Life support

Soil formation Nutrient cycle Primary production ...

Provisioning

Wood, bio-energy, water, food and feed (NWFP), …

Bioeconomy
Biomass «traditional» and innovative materials and products

Living from

Regulating
Climate regulation, protection against hazards, habitat conservation…

Resilience Conservation Restoration
Protection

Living with
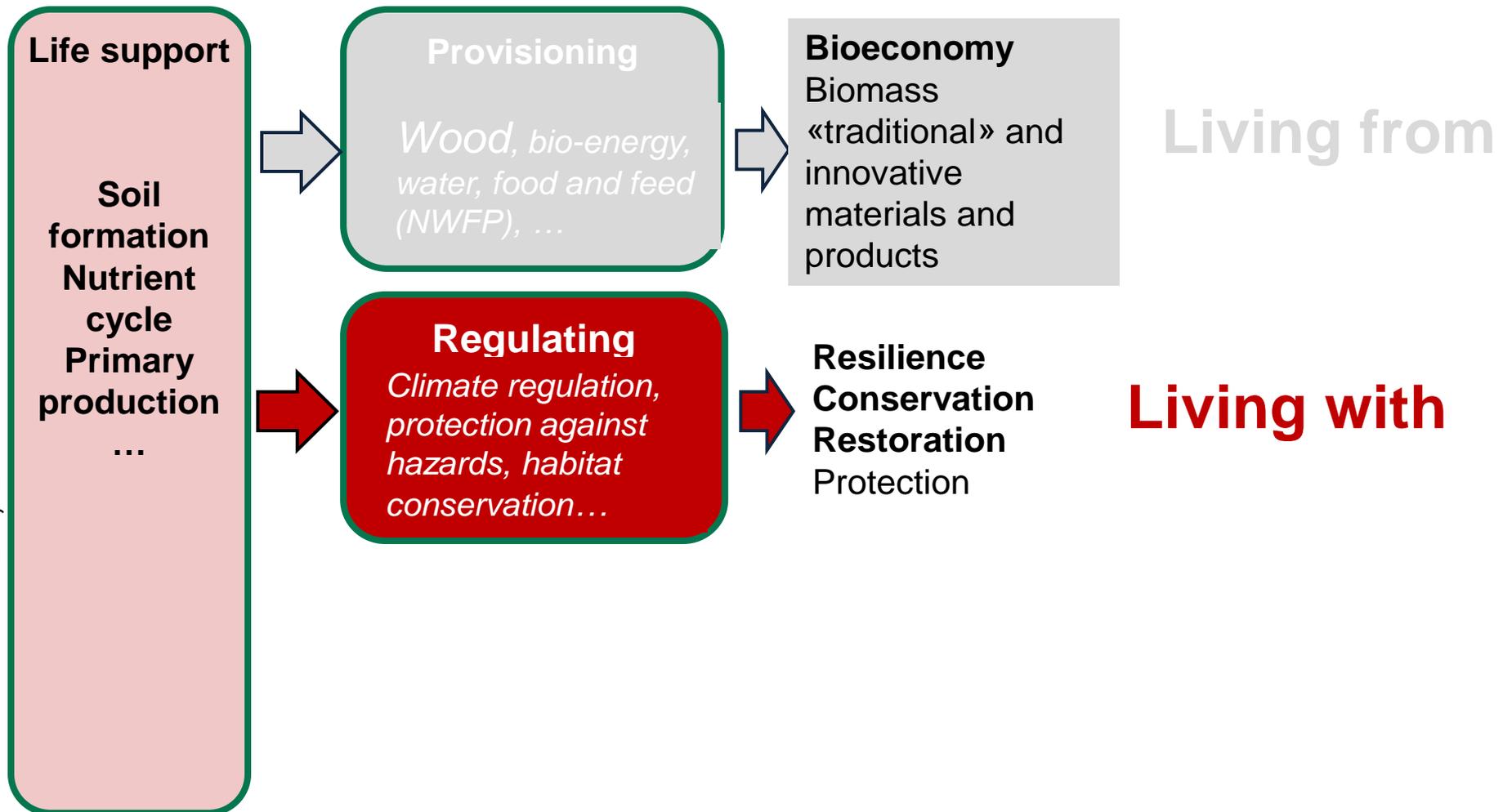
New markets for the regulating services

- Market based mechanisms
  - Payments for environmental services
    - Standards, labels and certification schemes
      - SFN, LCA, traceability, social aspects, …
      - Credits generation

Standards map (International Trade Centre www.standardsmap.com)

Carbon credits typologies
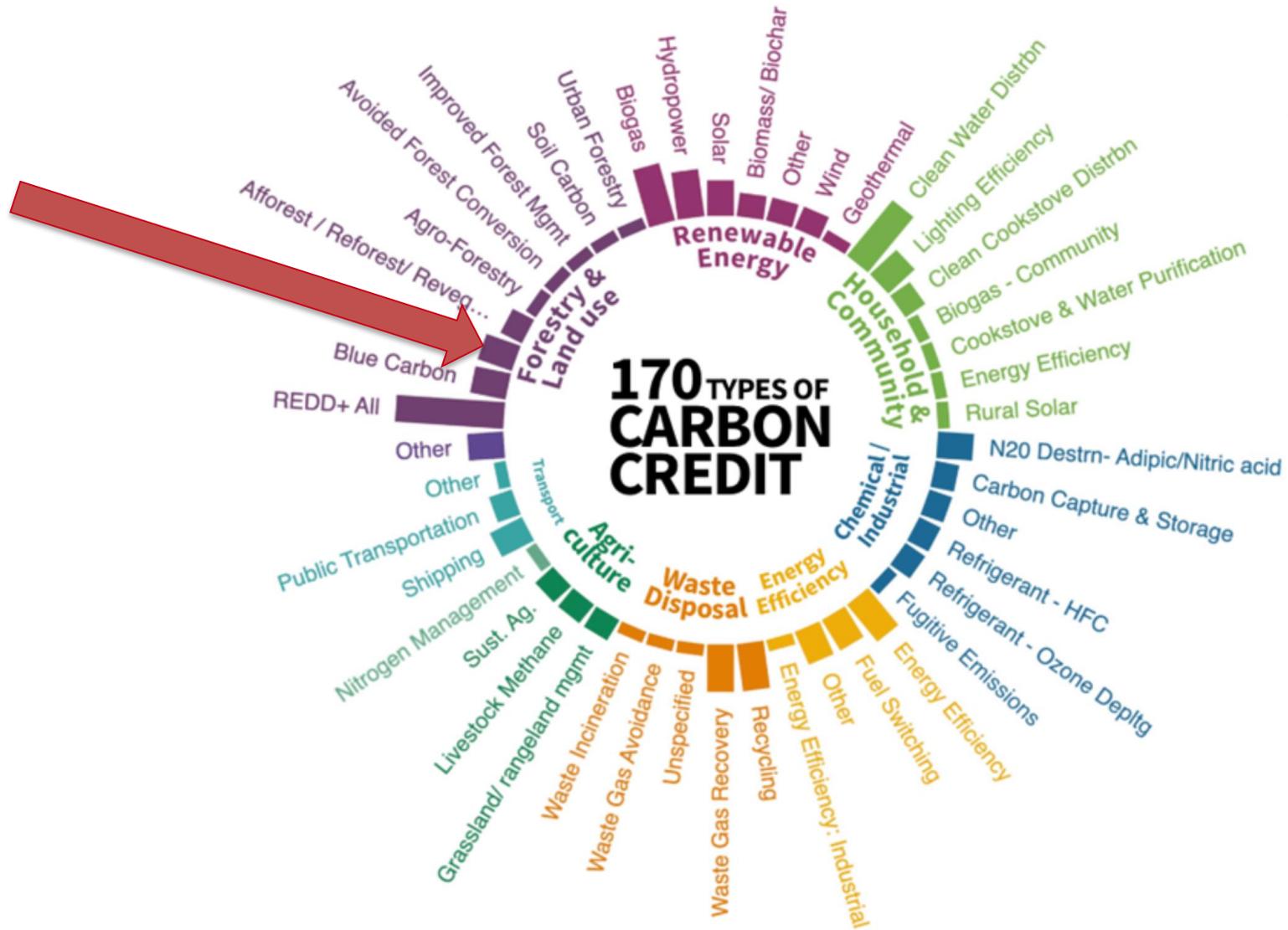
Source: Ecosystem Marketplace, 2022

Not only carbon, but also biodiversity, peatland, water, bio-climate, sustainability, … standards

UK Government Endorsed Standards
(as at 05.09.23)

Ecosystem Service Market	UK Government Endorsed	Relevant Metric
Woodland carbon	Woodland Carbon Code*	WCC Carbon Calculator
Peatland carbon	IUCN Peatland Code**	PC Emissions Calculator
Biodiversity net gain	To be confirmed***	Biodiversity Metric (v4.0)

https://finance.earth/wp-content/uploads/2023/08/Full-Nature-Markets-Principles-October-2023.pdf

Ecosystem Services (ES) and Life Frames

Source: MEA, 2005

Life support

Soil formation Nutrient cycle Primary production …

Provisioning

Wood, bio-energy, water, food and feed (NWFP), …

Bioeconomy Biomass «traditional» and innovative materials and products

Living from

Regulating *Climate regulation, protection against hazards, habitat conservation…*

Resilience Conservation Restoration Protection

Living with

Socio-Cultural *Aesthetics, religious, spiritual, recreation, education, scientific, health …*

Wellbeing Health Social inclusion New social demand/needs

Living in Living as

TESAF Dipartimento Territorio e Sistemi Agro-Forestali

UNIVERSITÀ DEGLI STUDI DI PADOVA

(Socio-) Cultural services

Cultural services
(land art, concerts, performances...)

Recreation and tourism

Sport
(hiking, nordic walking, mountain bike, orienteering, ...)

Education

Spiritual and religious services
(luoghi di meditazione e culto, sepoltura in foresta, ...)

Social inclusion

Green care

Well-being and theraphy
(forest bathing-Shinrin-Yoku, forest therapy,...)

At least 3 sources of undervaluation of socio-cultural services

- Some components are **not assessed**
- In advanced economies wild forest products **picking** is considered a provisioning service, while it is **a socio-cultural one**
- The real economic **impact** is often **down-stream** the socio-cultural services supply

Impacts of socio-cultural services development

The new activities:

- they meet the needs of emerging citizens that the welfare state is often unable to satisfy

- they are linked to new expertise ($\rightarrow$ new job opportunities

- they are able to activate new financial sources (SRI)

For implementing these activities, the private (social) sector is far ahead of the traditional forestry sector, their leaders and their way of thinking and deciding on the use of forest resources

SRI: Social Responsible Investments

Growing role of Socio-cultural ES in line with the changes in economy

Differentiated goods

Focus on

Making experiences; sharing economy

Services consumption

Market products consumption

Raw material extraction

Non differentiated goods

Commodities

Premium

De-materialisation Tertiarization

Source: B. Joseph Pine II e James H. Gilmore, 1998 (modif.)

TESAF Dipartimento Territorio e Sistemi Agro-Forestali

UNIVERSITÀ DEGLI STUDI DI PADOVA

		Institutions, drivers	**Prevailing instruments**
Provisioning *Food, feed, water, energy, fibers, building materials…*	Mainly **private goods with market** Focus: technological innovation, efficiency	Market	prices under the free market economy
Regulating *Wood, bio-energy, water, food and feed (NWFP), …*	Mainly public **goods without prices**	State	compensations, incentives, (eco)taxes, …
Socio-Cultural *Aesthetics, religious, spiritual, recreation, education, scientific, health …*	Mixed **public e private goods with/without market** Focus: social innovation	Community	technical assistance, people engagement, local authorities' animation, entrepreneurial support, …

A **<u>simplified</u>** view of ES and the role of the State

	Agents	**Prevailing instruments**	**Some leading policies**
Provisioning	**Market** (State)	prices under the free market economy	Circular bioeconomy policy
Regulating	**State** (market)	compensations, incentives, (eco)taxes, …	Biodiversity & Climate policy
Socio-Cultural	**Community** (State, market)	people engagement, technical assistance, local authorities' animation, entrepreneurial support, …	One health policy

New initiatives to give value to forest-based ES: a lot of market failures

Based on a new analysis at least 90% of Verra's rainforest carbon credits do not represent real emission reductions

Each credit is equal to one metric tonne of CO2 equivalent

94.9m carbon credits claimed

5.5m real emissions reductions

The investigation found that:

- Only a handful of Verra's rainforest projects showed evidence of deforestation reductions, according to two studies, with further analysis indicating that 94% of the credits had no benefit to the climate.

- The threat to forests had been overstated by about 400% on average for Verra projects, according to analysis of a 2022 University of Cambridge study.

- Gucci, Salesforce, BHP, Shell, easyJet, Leon and the band Pearl Jam were among dozens of companies and organisations that have bought rainforest offsets approved by Verra for environmental claims.

The Guardian

Revealed: more than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows

https://www.theguardian.com/environment/2023/jan/18/revealed-forest-carbon-offsets-biggest-provider-worthless-verra-aoe

TESAF Dipartimento Territorio e Sistemi Agro-Forestali

UNIVERSITÀ DEGLI STUDI DI PADOVA

Public institutions define the frame rules (indicators, thresholds, procedures, institutional actors, M&V systems, …) for managing environmental (forest) resources

An approach consistent with the principles of the "Nudges economics"
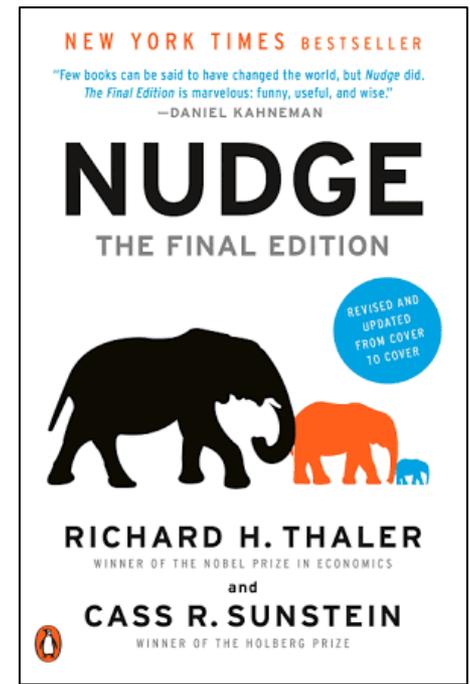
Innovative tools by civil society

Area of policy action	Private initiatives that have covered the areas of action
Supporting SFM	CoC standards by FSC, PEFC, Naturaland, Plockhugget, …
Sustainable finance	GABV, FEBEA and INAISE networks' activities; Basel 1 and 2
Sustainable use of wood biomass	Better Biomass, ISCC, SBP, … (see https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes_en)
Sustainability reporting	GRI, CDP, SASB, ISO 14001 EMS, SASCB, Carbon Trust Standard, Greenhouse Gas Protocol by the WRI and WBCSD,…
Carbon credits generation	National Schemes and private certification schemes and standards
Legal origin of farm and forest products and their CoC	GFP, Rainforest Alliance, RTRS, RSB, RSPO, SAN, SBP + already mentioned forest related organizations

TESAF Dipartimento Territorio e Sistemi Agro-Forestali

UNIVERSITÀ DEGLI STUDI DI PADOVA

The later initiatives by the State

Area of policy action	Private initiatives that have covered the areas of action	The regulatory initiatives by the EU
Supporting SFM	CoC standards by FSC, PEFC, Naturaland, Plockhugget, …	**Closer to Nature Guidelines, Env. Claims and label Directive**
Sustainable finance	GA... ac...	**Sustainable finance package: ESG rating, Taxonomy**
Sustainable use of wood biomass	Be... http... ene...	**REDII and REDIII**
Sustainability reporting	GF... SA... Gr... an...	**CSRD (Corporate Sustainability Reporting Directive) and NFRD (Non-Financial Reporting Directive)**
Carbon credits generation	Na... cer...	**CRCF – Carbon Removal Certification Framework Regulation**
Legal origin of farm and forest products and their CoC	GFP, Rainforest Alliance, RTRS, RSB, RSPO, SAN, SBP + already mentioned forest related organizations	**EUTR – European Union Timber Regulation EUDR – European Union Deforestation and forest degradation Regulation**

The critical point: the State is a **ruler** or also a **new player**?

TE**S**AF Dipartimento Territorio e Sistemi Agro-Forestali

UNIVERSITÀ DEGLI STUDI DI PADOVA

Opposite trends: need for finding compromise solutions

Urbanization **Rural desertification**	⬅➡	**Neo-ruralism** **«Soft» economy, de-growth**
Tertiarization **De-materialization**	⬅➡	**Bio-economy (bio-based tech. devlpmnt) and de-carbonization**
Community-based forestry	⬅➡	**Privatization and State forests enterprises**
Financial and market globalization, global supply chains	⬅➡	**Nationalization, SRI and Impact investments at local level short value chain**
Multi-functional forestry **Integrative forest mngmnt**	⬅➡	**Sustainable intensification** **Segregative forest mngmnt**

Diverse options with different trade-offs between ES