

06-10-2023
IL QUARTIERE - P.ZZA MONTEBELLO, 1 - SALUZZO (CN)

**Foreste e servizi
ecosistemici**
Dalla teoria alla pratica

UN EVENTO DI


 Questo evento è finanziato dal progetto "Foreste e servizi ecosistemici" del Programma di Sviluppo Regionale "Sviluppo Economico e Sociale" del Piano Regionale di Sviluppo Economico (PRSE) 2014-2020.

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Servizi ecosistemici e *Nature-based solutions*: concetti e modelli di *business*

Davide Pettenella

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Organizzazione

- Servizi ecosistemici e *Nature-Based Solutions*: di cosa parliamo?
- Gli strumenti economici per stimolare le NBS
- Modelli di *business* e ruolo delle istituzioni: l'esempio dei crediti di carbonio

Le *slides* sono disponibili sul web. Cerca "Pettenella"

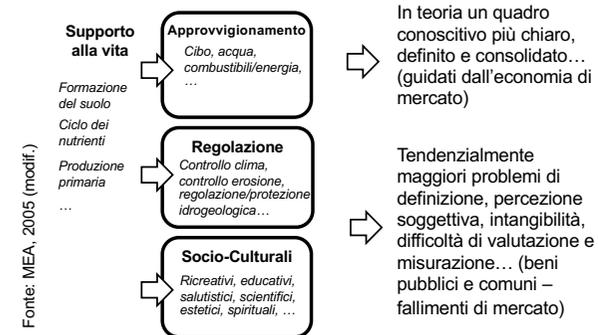
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Organizzazione

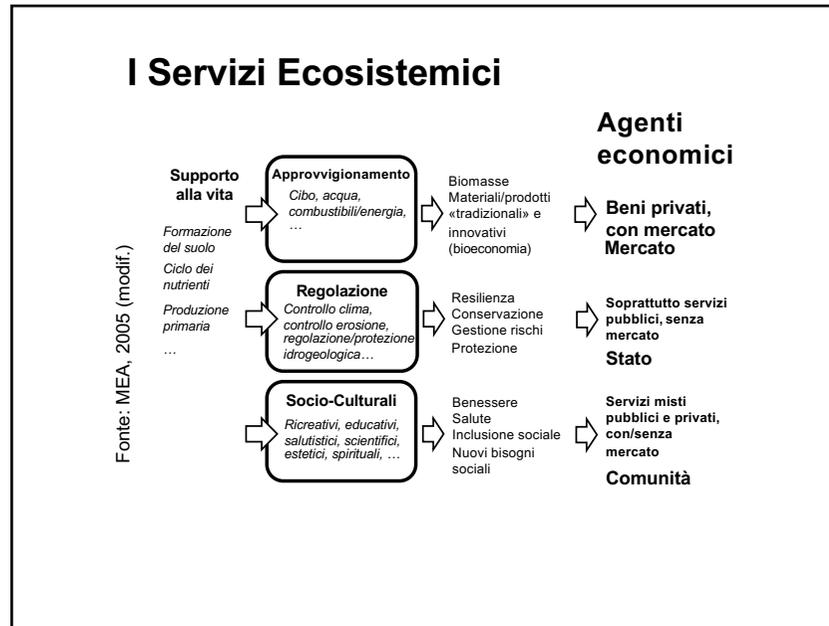
- **Servizi ecosistemici e *Nature-Based Solutions*: di cosa parliamo?**
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I Servizi Ecosistemici



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Nature-Based Solutions

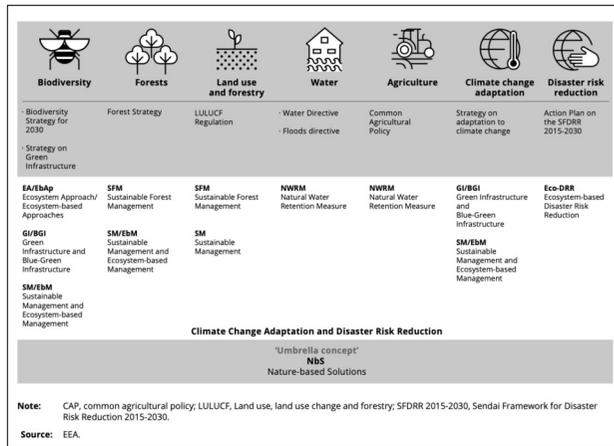


“Living solutions inspired by, supported by or copied from nature and which aim to help societies address a variety of environmental, social and economic challenges in sustainable ways” (EC, 2015)



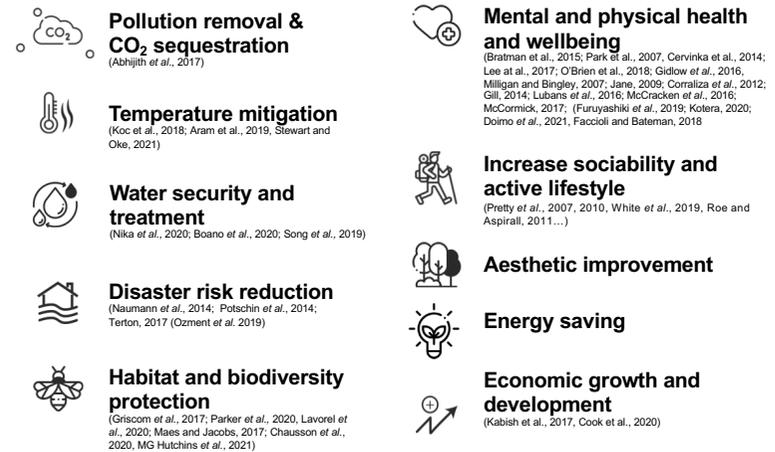
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Nature-Based Solutions: un concetto-ombrello (non originale: rinaturalizzazione, greening, restauri verdi, ...)



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I benefici delle NBS



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Un trend generale (?): dagli strumenti di Comando e Controllo (C&C) ai *Market Based Instruments (MBI)*

C&C	Tasse, permessi, vincoli, obiettivi minimi, obblighi, ... “ <i>non to be done</i> ”
MBI	Strumenti economici utilizzati per sostenere scelte ritenute opportune “ <i>to be done</i> ” (su base volontaria)

Fonte: OECD 1994, Stavins 2001, Windle et al. 2005

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Come attivare le NBS?

	Tools	Direct costs for the public sector	Transaction costs for the public sector	Approach	Participation by the privates	
Passive: Command and control	Thresholds, limitations, constraints	Relatively low	Relatively low	Top down	Compulsory	sticks
	Tax deductions, tax exemption	Relatively high			Voluntary or imposed by the State	
Active: creation of new sources of income	Fixed compensation				Voluntary	carrots
	- PES schemes	Zero costs	Relatively high	Bottom up	Voluntary	
	- PES-like schemes	Very low	Low	Mixed	Compulsory for some parties	
	- PPP	Relatively high	Low	Top down	Voluntary	
	- Land acquisition by public authorities or large companies (lease, concessions, ...)	Relatively high	Low	Top down	Normally voluntary	
	- Tradable permits (cap & trade schemes)	Relatively low	Low	Mixed	Compulsory for some parties	
	- Certification and labelling (premium price)	Zero costs	Zero costs	Bottom up	Voluntary	
	- Sponsoring, donations (philanthropy)					
Soft tools	- Information, provision of services, goods free of charge or a low prices	Relatively high	Low	Mixed		sermons

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In effetti la società civile e le imprese hanno negli ultimi decenni sviluppato molti strumenti innovativi volontari per promuovere, monitorare, comunicare e certificare gli impatti delle proprie attività sulle risorse ambientali e sulla società

... spesso con grande capacità innovative, limitati costi di transazione, trasparenza ed efficacia.

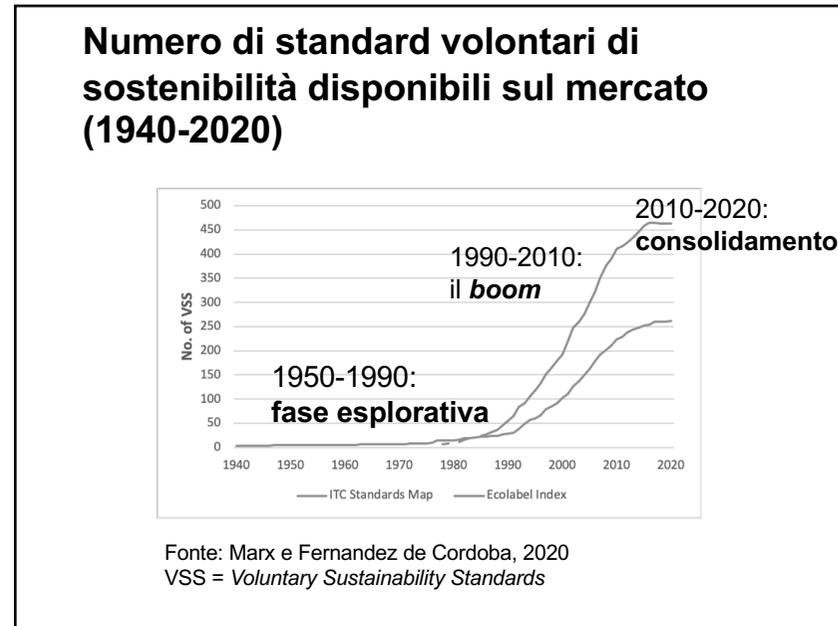
Molte organizzazioni hanno fatto significativi investimenti in questi strumenti

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Area di azione	Iniziative private che in precedenza hanno riguardato il settore dell'azione politica dell'UE
Origine sostenibile del legno e relativa Catena di custodia	CoC standards di FSC, PEFC, Naturaland, Plockhugget, ...
Finanza sostenibile	Iniziative dei network GABV, FEBEA e INAISE; Basilea 1 e 2
Uso sostenibile delle biomasse a fini energetici	Better Biomass, ISCC, SBP, ... (vd. https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes_en)
Origine legale di 7 materie prime naturali e loro Catena di custodia	GFP, Rainforest Alliance, RTRS, RSB, RSPO, SAN, SBP + organizzazioni forestali già menzionate
Reporting di sostenibilità o impatto	GRI, CDP, SASB, ISO 14001 EMS, SASCB, Carbon Trust Standard, Greenhouse Gas Protocol del WRI e del WBCSD,...
Generazione di crediti di carbonio	Sistemi nazionali e sistemi e standard di certificazione privati

CDP: Carbon Disclosure Project, CoC: Chain of Custody, EMS: Environmental Management System, GCP: Global Coffee Platform, GRI: Global Reporting Initiative, ISCC: International Sustainability and Carbon Certification, RSB: Roundtable on Sustainable Biomaterials, RTRS: Round Table on Responsible Soy Association, RSPO: Roundtable on Sustainable Palm Oil, SAN: Sustainable Agriculture Network, SBP: Sustainable Biomass Program, SASB: Sustainability Accounting Standards Board, SASCB: Sustainability Accounting, Standards and Certification Board, WBCSD: World Business Council for Sustainable Development, WRI: World Research Institute.

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Area di azione	Iniziative private che in precedenza hanno riguardato il settore dell'azione politica dell'UE	Iniziative di regolazione dell'UE
Origine sostenibile del legno e relativa Catena di custodia	CoC standards di FSC, PEFC, Naturaland, Plockhugget, ...	EUTR – European Union Timber Regulation
Finanza sostenibile	Iniziative dei network GABV, FEBEA e INAISE; Basilea 1 e 2	Taxonomy
Uso sostenibile delle biomasse a fini energetici	Better Biomass, ISCC, SBP, ...	REDII and REDIII (draft)
Origine legale di 7 materie rime naturali e loro Catena di custodia	GFP, Rainforest Alliance, RTRS, RSB, RSPO, SAN, SBP + organizzazioni forestali già menzionate	EUDR – European Union Deforestation and forest degradation Regulation
Reporting di sostenibilità o impatto	GRI, CDP, SASB, ISO 14001 EMS, SASCB, Carbon Trust Standard, Greenhouse Gas Protocol by the WRI and WBCSD,...	CSRD (Corporate Sustainability Reporting Directive) e NFRD (Non-Financial Reporting Directive)
Generazione di crediti di carbonio	Sistemi nazionali e sistemi e standard di certificazione privati	CRC – Carbon Removal Certification Regulation (draft)

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Strumenti della società civile per le NBS: non sempre privi di limiti ed errori



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

Investigation into Verra carbon standard finds most are 'phantom credits' and may worsen global heating

- Nowhere else to go: Alto Mayo, Peru, at centre of conservation row
- Greenwashing or a net zero necessity? Scientists on carbon offsetting
- Carbon offsets flawed but we are in a climate emergency

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.

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

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Verra Response to Guardian Article on Carbon Offsets

18 JANUARY 2023

- The Guardian, based on work with Die Zeit and SourceMaterial has incorrectly claimed that Verra-certified REDD projects are consistently and substantively over-issuing carbon credits.
- The claims in this article are based on studies using "synthetic controls" or similar methods that do not account for project-specific factors that cause deforestation. As a result, these studies massively miscalculate the impact of REDD projects.
- Verra develops and continually improves methodologies based on the best-available science and technology through rigorous consultations with many academics and experts. This ensures that project baselines used to calculate carbon credits are robust and a credible benchmark against which to measure the impact of REDD projects.

Verra is disappointed to see the publication of an article in the Guardian, developed with Die Zeit and SourceMaterial, incorrectly claiming that REDD projects are consistently and substantively over-issuing carbon credits. Verra worked closely with both publications in the run-up to the publication to explain why this claim is untrue, as it is based on studies that use a "synthetic control" approach or similar methods. We want to share this information with our stakeholders and the wider climate community.

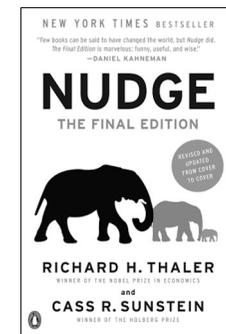
<https://verra.org/verra-response-guardian-rainforest-carbon-offsets/>

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"Il mercato ogniqualvota è possibile, lo Stato quando necessario"

Le istituzioni pubbliche definiscono il quadro generale delle regole (indicatori, soglie, procedure, attori istituzionali, sistemi M&V, ...) per la gestione delle risorse ambientali (forestali)

Un approccio coerente con i principi della "*Nudges economics*" (economia della spintarella)



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Compliance
Mandatory
(institutional)

ERU-CER
Emission Reduction Unit
Certified Emission Reduction

UN and Government Standards:



Clean Development Mechanism
(CDM)



Joint Implementation (JI)

Source: <https://www.icroa.org/>

Voluntary
(OTC - Over the Counter)

VER
Verified Emission Reduction

Standard	Sito internet	Logo
VCS-Verra	https://verra.org/	
The Gold Standard	https://www.goldstandard.org/	
CCB	www.climate-standard.org	
Plan Vivo	www.planvivo.org	
Carbon Fix	www.carbonfix.org	
Social Carbon	www.socialcarbon.org	
Climate action reserve	www.climateactionreserve.org	

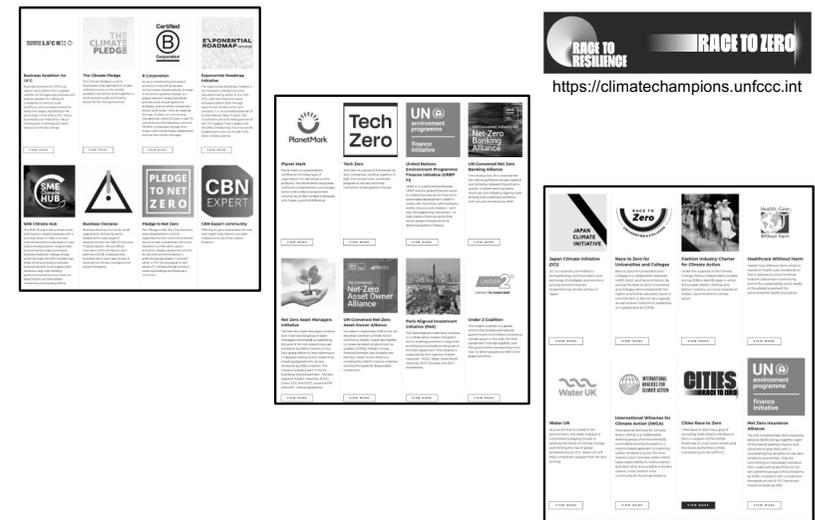
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Principali standard nel mercato volontario del C

Standard	Web site	Logo
VCS-Verra	https://cosystem/verra.org/ > 80% DEL MERCATO	
The Gold Standard	https://www.goldstandard.org/	
CCB	www.climate-standard.org	
Plan Vivo	www.planvivo.org	
Carbon Fix	www.carbonfix.org	
Social Carbon	www.socialcarbon.org	
Climate action reserve	www.climateactionreserve.org	

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Impegni (“Commitments”) di diversi gruppi di organizzazioni verso la neutralità



https://climatechampions.unfccc.int

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Generazione di crediti forestali anche da parte di aziende forestali

WEYERHAEUSER ANNOUNCES APPROVAL OF FIRST FOREST CARBON PROJECT

PRINT NEWS RELEASE

Sep 20, 2023

Company partnering with Carbon Direct to deliver scientifically robust, high-quality forest carbon credits

SEATTLE, Sept. 20, 2023 /PRNewswire/ -- Weyerhaeuser Company (NYSE: WY) today announced it has received approval from the American Carbon Registry for its Improved Forest Management (IFM) carbon credit project in Maine. Covering approximately 50,000 acres and verified through a third-party auditor, the Kibby Skinner IFM Project is the first issuance of credits for Weyerhaeuser through the voluntary carbon market. The project has an estimated initial credit issuance of nearly 32,000 mtCO₂e, with one credit equal to one metric ton of carbon dioxide equivalent. Over the lifetime of the project, it is expected to generate 475,000 credits.

"Forests represent one of the largest and most readily available opportunities to remove carbon dioxide from the atmosphere and help address the impacts of climate change," says Russell Hagen, senior vice president and chief development officer for Weyerhaeuser. "Since launching our Natural Climate Solutions business, we have been working to develop forest carbon projects that can generate meaningful carbon additionality with measurable climate benefits. This initial project is an important milestone for Weyerhaeuser and demonstrates our commitment to offering only the highest-quality credits to the market."



Weyerhaeuser is currently in the early stages of developing several IFM projects on select areas within its 11-million-acre land base in the U.S., including two in the South slated for completion in late 2023 or early 2024. As it develops these projects, the company is working with experts at Carbon Direct to ensure that all credits offered will generate real, additional carbon absorbed and stored in project areas. Carbon Direct will provide advisory and marketing services and evaluate Weyerhaeuser projects against the Criteria for High-Quality Carbon Dioxide Removal, which provides science-based benchmarks to drive effective, equitable climate action at scale.

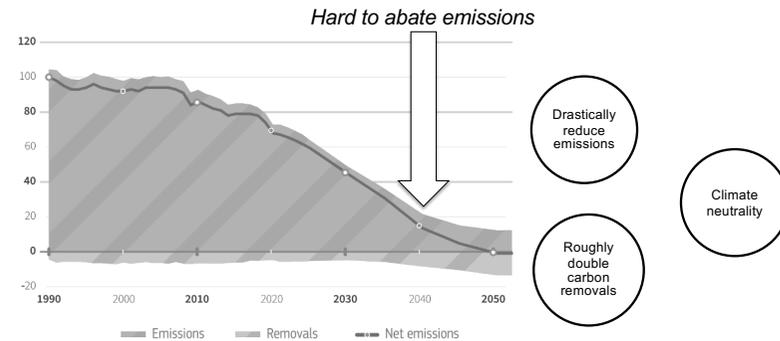
Weyerhaeuser:
da 20 200 ha
→ 30 000 mtCO₂e

Nel lungo periodo, dalla
stessa area, 475 000
crediti programmati

<https://investor.weyerhaeuser.com/2023-09-20-Weyerhaeuser-Announces-Approval-of-First-Forest-Carbon-Project>

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Motivazioni



Fonte: slides sulla CRC della DGEnv

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The 3 sectors considered by the CRC (former “Carbon Framing Initiative”)



PERMANENT STORAGE
E.g. Bioenergy with Carbon Capture and Storage (BECCS), Direct Air Carbon Capture and Storage (DACCS)
Incluso il Bio-char



CARBON FARMING
E.g. Af/re-forestation, improved forest management, agroforestry, soil carbon sequestration, peatland restoration



CARBON STORAGE IN PRODUCTS
E.g. Use of wood-based materials in construction, long-lasting Carbon Capture and Utilisation (CCU)

Un compito ambizioso: 3 gruppi di interesse con obiettivi contrastanti riuniti nello stesso quadro di regole

Fonte: EC DGEnv

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I 3 settori considerati dal Regolamento CRC (prima “Carbon Framing Initiative”)



~~**PERMANENT STORAGE**~~
~~E.g. Bioenergy with Carbon Capture and Storage (BECCS), Direct Air Carbon Capture and Storage (DACCS)~~
Incluso il Bio-char
(dopo 2030)



CARBON FARMING
E.g. Af/re-forestation, improved forest management, agroforestry, soil carbon sequestration, peatland restoration



CARBON STORAGE IN PRODUCTS
E.g. Use of wood-based materials in construction, long-lasting Carbon Capture and Utilisation (CCU)

Nella attuale discussione in Parlamento questo 3° settore è posto in forte discussione

Fonte: EC DGEnv

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I 3 settori considerati dal Regolamento CRC (prima "Carbon Framing Initiative")



PERMANENT STORAGE
E.g. Energy with Carbon Capture and Storage (BECCS), Direct Air Carbon Capture and Storage (DACCS)

Incluso il Bio-char (dopo 2030)



CARBON FARMING
E.g. Af/re-forestation, improved forest management, agroforestry, soil carbon sequestration, peatland restoration



CARBON STORAGE IN PRODUCTS
E.g. Use of wood-based materials in construction, long-lasting Carbon Capture and Utilisation (CCU)

In questa situazione: **estensivazione** gestione forestale (t lunghi, > stock, conversione cedui, ...)

+ stock

Fonte: EC DGEnv

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I 3 settori considerati dal Regolamento CRC (prima "Carbon Framing Initiative")



PERMANENT STORAGE
E.g. Energy with Carbon Capture and Storage (BECCS), Direct Air Carbon Capture and Storage (DACCS)

Incluso il Bio-char (dopo 2030)



CARBON FARMING
E.g. Af/re-forestation, improved forest management, agroforestry, soil carbon sequestration, peatland restoration



CARBON STORAGE IN PRODUCTS
E.g. Use of wood-based materials in construction, long-lasting Carbon Capture and Utilization (CCU)

In questa situazione: **intensivazione** gestione forestale: aumentare la produttività producendo più biomassa per impieghi extraboschivi

+ flow + stock

Fonte: EC DGEnv

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... e quindi diversi *business model*:

Business as Usual: il mercato dei crediti è effimero e incerto. Proseguiamo come nel passato: la domanda di prodotti legnosi e di attività ricreative, sportive, culturali, salutistiche, ... sono in espansione

Gestire le foreste per **produrre crediti dall'incremento degli stock**; possibilità anche di **crediti da biodiversità**

Gestiamo la filiera **producendo crediti forestali e da prodotti a lungo ciclo. Co-benefici** da mantenere nei **livelli minimi** consentiti

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In ogni caso...

Diamoci una mossa perché presto il settore forestale si troverà a competere con quello energetico...

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MIT Technology Review

CLIMATE CHANGE AND ENERGY

The US just invested more than \$1 billion in carbon removal

The move represents a big step in the effort to suck CO2 out of the atmosphere—and slow down climate change.

By James Temple

August 11, 2023

The US Department of Energy announced today that it's providing \$1.2 billion to develop regional hubs that can draw down and store away at least 1 million metric tons of carbon dioxide per year as a means of combating climate change.

The move represents a major step forward in the effort to establish a market for removing the planet-warming greenhouse gas from the atmosphere, using what are known as direct air capture (DAC) machines.

<https://www-technologyreview-com.cdn.ampproject.org/>

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PRESS RELEASES 09/27/23

Trace Carbon Solutions and Molpus Woodlands Group Announce the Evergreen Sequestration Hub in Louisiana

- Evergreen Sequestration Hub is strategically located near significant industrial emissions sources in Southwest Louisiana and Southeast Texas
- Estimated total sequestration capacity of over 250 million metric tons of CO₂

FOR IMMEDIATE RELEASE September 27, 2023

Trace Carbon Solutions, LLC (Trace) and Molpus Woodlands Group (Molpus), on behalf of a client, announced today that they have signed a servitude agreement providing Trace with exclusive rights to develop and operate a carbon sequestration site, to be called the Evergreen Sequestration Hub (Evergreen Hub), on approximately 20,000 acres in Calcasieu and Beauregard parishes in Louisiana. Trace will use the site to permanently sequester industrial CO₂ in underground geologic formations, while Molpus will continue to manage the aboveground acreage as a sustainably managed working forest.

<https://www.molpus.com/2023/09/trace-carbon-solutions-and-molpus-woodlands-group-announce-the-evergreen-sequestration-hub-in-louisiana/>

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In ogni caso...

Diamoci una mossa perché presto il settore forestale si troverà a competere con quello energetico ...

... e non è difficile immaginare chi sia più a rischio di soccombere!

