



carbonsink

the sustainable change

05.10.2018 Kickoff Meeting – Progetto LIFE SUBSED

CARBONSINK

CHI SIAMO

Carbonsink è una società di consulenza leader nello sviluppo di strategie di mitigazione del cambiamento climatico e nella compensazione delle emissioni di CO₂.

Consulenza Life Cycle Assessment:

- **EVERGREEN - LIFE13 ENV/IT/000461**
- **HORTISED - LIFE14 ENV/IT/000113**



LIFE CYCLE ASSESSMENT – DEFINIZIONE

«è un procedimento oggettivo di valutazione degli impatti energetici e ambientali relativi a un prodotto/processo/attività, effettuato attraverso l'identificazione dell'energia e dei materiali usati e dei rifiuti rilasciati nell'ambiente. La valutazione include l'intero ciclo di vita del prodotto/processo/attività, comprendendo l'estrazione e il trattamento delle materie prime, la fabbricazione, il trasporto, la distribuzione, l'uso, il riuso, il riciclo e lo smaltimento finale»

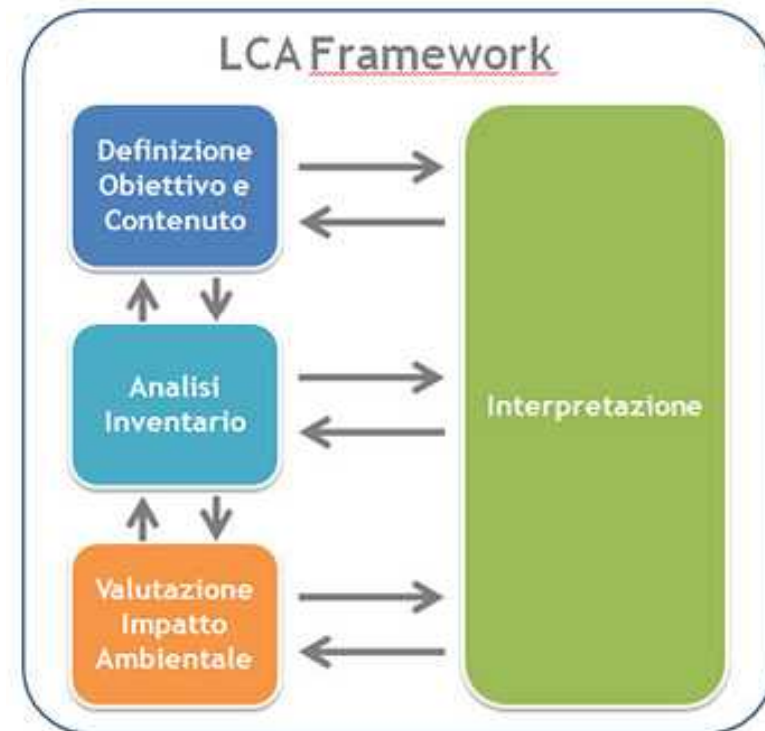
SETAC, 1993



- **ISO 14040:** Environmental management – Life Cycle Assessment – Principles and Framework
- **ISO 14044:** Environmental management – Life Cycle Assessment – Requirements and Guidelines

LIFE CYCLE ASSESSMENT – DEFINIZIONE

- La definizione dello scopo, di **un'unità funzionale**, dei **confini del sistema analizzato** e degli **indicatori ambientali** da considerare.
- La compilazione di un **inventario degli elementi in ingresso ed in uscita** (input-output) da e verso il sistema di analizzato.
- La **valutazione degli impatti** potenziali associati al sistema analizzato.
- L'interpretazione dei risultati





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Sustainable substrates for agriculture from dredged remediated marine sediments: from ports to pots – SUBSED

LIFE17 ENV/IT/000347

Action B.2: Demonstration of the use of remediated sediments as a substrate for nursery production

B2.2 – Nursery production of olive

200 grafted plantlets cv Frantoio

Cultivar	N° plants	Treatments (substrates)	Repeats	Total plants N°
1	10	5	4	200

Container: 5L

Treatments: TS0 (0% sediment), TS25 (25% sediment), TS50(50% sediment), TS75(75% sediment), TS100 (100% sediment).

Plants will be cultivated until they will reach the common commercial height (depending on the FLORATOSCANA guidelines):

1 year-old olive trees: 10-25 cm or 25-50 cm

2 years-old olive trees: 50-70 cm, 70-100 cm, 100-120 cm, , higher than 120 cm.





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Action B.4: Demonstration of the use of remediated sediments as a substrate for food crops production

B4.1 Basil cultivation

14400 basil seeds belonging to 2 different commercial cv

Cultivar	N° seeds	N° pots	Treatments (substrates)	Repeats	Total seeds N°
2	20	40	3	3	14400

Container: 0.75L

Treatments: TS0 (0% sediment), TS50 (50% sediment), TS100 (100% sediment).

If these sediment concentrations will not promote basil seeds germination some different concentrations will be tested.



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B4.2 Blueberry cultivation

120 blueberry plantlets (60 cv Duke + 60 cv Bluecrop)

Cultivar	N° plants	Treatments (substrates)	Repeats	Total plants N°
2	5	3	4	120

Container: 35L

Treatments: TS0 (0% sediment), TS50 (50% sediment), TS100 (100% sediment).

B4.3 Wild strawberry cultivation

120 plants cv Regina delle Valli

Cultivar	N° plants	Treatments (substrates)	Repeats	Total plants N°
1	10	3	4	120

Container: 80-100 x 50 cm plastic containers

Treatments: TS0 (0% sediment), TS50 (50% sediment), TS100 (100% sediment).



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Action C.3: Monitoring and validation of the use of remediated sediments as a substrate for nursing and cultivation: food crops production

C3.1 Olive nursery production

Monitoring of olive grafted plantlets growth:

STEM DIAMETER AND HEIGHT

NUMBER OF LEAVES AND LEAF BLADE COLOUR

CHLOROPHYLL CONTENT

FRESH/DRY MATTER RATIO AND ROOT DEVELOPMENT

additional if advisable ANALYSIS FOR CONTAMINANTS DETECTION



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Action C.3: Monitoring and validation of the use of remediated sediments as a substrate for nursing and cultivation: food crops production

C3.2 Basil

Once a week: seeds germination, plant survival and growth stage

End of demonstration (4-6 leaves stage):plant height, leaf area, number of leaves, chlorophyll content, fresh/dry weight;

chemical composition and organoleptic quality;

inorganic and organic pollutants

C3.2 wild strawberry and blueberry

plants: periodically (20-30 days) qualitative assesment on plants

fruits: pomological quality, chemical composition and organoleptic quality

screening for organic and inorganic pollutants

sensorial panel taste (depending on toxicological assessment)



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Action C.4: Monitoring of socio-economic impact of the project and LCA

LIFE CYCLE ASSESSMENT (LCA) System definition

