

The Hemp Value Chain

The Orchestrator's Challenge

FACILITATOR GUIDE AND PRINT-READY SIMULATION CARDS



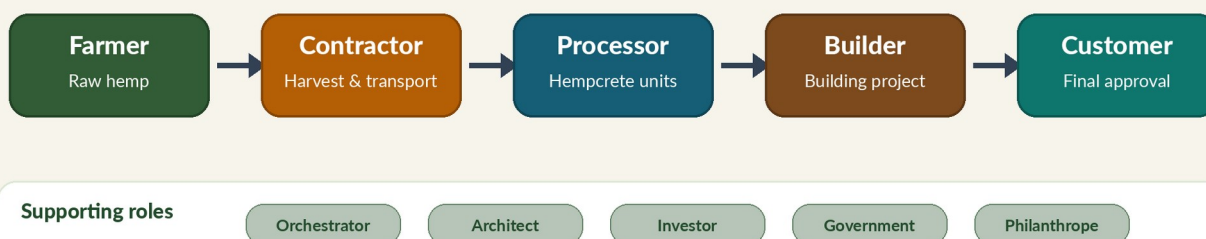
Developed by UCE

How to use this simulation tool

A clear sequence for preparing, facilitating and printing the materials.

The value chain to keep moving

Material, money, permits and trust must connect across all actors.



Design note

The role cards are designed as large, high-contrast print cards. Other card decks are arranged four per page for practical printing and cutting.

Contents

Part	Section	Use
1	Game at a glance, introduction and purpose	Quick summary of round structure, conversion rule, system conditions and why biobased value chains matter
2	Preparation	Materials, room setup, system tracker and pre-simulation steps
3	Round flow	The five fixed phases, round objectives and payment flow
4	Roles and orchestration	Orchestrator powers, role summary and system conditions
5	Facilitation and scoring	Facilitator tips, winning criteria and score sheet
Annexes	Printable materials	Glossary, participant script, role cards, decks, money and tokens

Disclaimer

Educational use only

This simulation tool is for educational and training purposes only. All scenarios, roles, prices and events are simplified and do not reflect real-world values or provide financial, legal or technical advice. Participation is voluntary and at participants' own responsibility.

QUICK START

Game at a glance

One non-scoring orientation, four gameplay rounds and one shared success system.

Use this page to brief participants and keep facilitation decisions aligned during play.

Step	Focus	What must be clear
Round 0	Orientation Pulse	Non-scoring mapping of needs, blockers and dependencies.
Round 1	Sourcing & Contracts	Supply terms, financing support and Builder-Customer / Developer agreement.
Round 2	Production & Coordination	Event response, material movement, payments and permit progress.
Round 3	Crisis Management	Crisis response, renegotiation and protection of system flow.
Round 4	Expansion & Reflection	Opportunity response, final deliveries, scaling choices and learning.

Keep these rules visible	Use during facilitation
Production conversion	1 t raw hemp = 5 hempcrete units. 10 t raw hemp = 50 units.
Completion evidence	Award the building token only when 10 t hemp, 50 units, design, permit and customer approval are recorded.
Working value chain	Material flow, financing, permit/approval and Builder-Customer / Developer agreement must all connect.
Decision discipline	Each round follows input, negotiation, decision, resolution and recording; players choose a maximum of two actions.

Final result	Threshold
Strong value chain	All four system conditions confirmed, 18+ impact points and no unresolved Limited Operation Mode.
Partial success	At least three system conditions and 10-17 impact points, or viable but delayed.
System failure	Fewer than three system conditions, fewer than 10 impact points, or the project cannot finish.

1. Introduction to the simulation tool

The Hemp Value Chain - The Orchestrator's Challenge is a facilitated, role-based simulation for training future orchestrators.

Participants take on interdependent stakeholder roles and collectively design, negotiate and execute a viable hemp-based building project under time pressure, uncertainty and competing interests.

The simulation models a full value chain:

Core chain

Farmer -> Contractor -> Processor -> Builder -> Customer / Developer

Supported by: Orchestrator, Architect, Investor, Government / Policymaker and Philanthrope.

While hemp is used as the example material, the structure reflects general principles applicable to any biobased value chain.

Why building with biobased materials is a good idea

Lower CO₂ emissions and climate impact

Biobased crops such as hemp, flax and cattail store carbon while they grow. When these crops are turned into building materials, that carbon remains locked inside the building instead of being released into the atmosphere.

Supports a circular and resource-efficient economy

Biobased materials are renewable, can replace non-renewable resources and can often be recycled or composted at end of life.

Healthier soils, cleaner water and better biodiversity

Adding diverse crops such as hemp or cattail improves soil health, boosts biodiversity and reduces the need for chemicals.

New local business opportunities

Developing biobased value chains creates new revenue models, strengthens rural economies and reduces dependency on imported materials.

What is an Orchestrator in this simulation?

The Orchestrator is the central coordinating role responsible for making the value chain function as a system. The Orchestrator does not produce, invest or build; they align decisions, resolve conflicts and maintain flow across the chain.

- Agreements between stakeholders connect into a functioning value chain
- Information is shared and understood across roles
- Conflicts are addressed before they block progress
- Financial and sustainability goals are considered in decisions

The facilitator guides the overall process, explains the rules, manages time and supports learning without participating in negotiations. This is different from the Orchestrator, who is an active player inside the value chain.

2. Purpose, target group and learning objectives

This simulation trains participants to manage complex value chains through strategic negotiation, coordination and stakeholder alignment under time pressure and uncertainty. It helps participants understand how decisions affect the full chain and how to navigate trade-offs between financial viability and environmental and social impact.

Target group

- Students in post-secondary education (business, technical and higher education)
- Learners in professional training or upskilling programmes
- Individuals aspiring to coordinating or system-level roles such as orchestrators
- Future professionals working in multi-stakeholder collaboration across value chains

Learning objectives

- Coordinate multiple stakeholders with different and sometimes conflicting interests
- Negotiate under time pressure and incomplete information
- Use negotiation levers such as price, timing, volume and conditions
- Understand and manage interdependencies across a value chain
- Maintain system flow during disruptions and crises
- Make informed decisions under uncertainty
- Balance financial viability with environmental and social impact
- Integrate sustainability considerations into operational decisions
- Understand how individual decisions affect overall system performance

No prior technical knowledge of hemp is required, but participants are expected to engage actively and contribute to the shared process.

3. Preparation of the simulation tool

Facilitator materials

- 10 Role cards
- 10 Starting Situation cards
- 10 Event cards
- 10 Crisis cards
- 10 Opportunity cards
- 1 Score Sheet
- Simulation money: print €200,000-€250,000 in total
- Token products

Room setup

Arrange tables so all stakeholders can easily interact. Ensure shared visibility using a whiteboard or flipchart for agreements and tracking. Use a timer or bell for round transitions. Time needed: 80-90 minutes including wrap-up.

System Tracker (shared board)

Tracker area	What to record
Material flow	Farmer -> Contractor -> Processor -> Builder -> Customer / Developer
Agreements	Who supplies whom
Quantities	Approximate volumes in tons or units
Missing links	Any gaps in the chain

Pre-simulation steps

1. Introduce the bio-based economy and orchestration concept.
2. Assign or select the Orchestrator.
3. Distribute role cards and explain goals.
4. Outline the non-scoring Round 0 orientation and the four gameplay rounds.

Facilitation guidance

Keep the simulation dynamic. Avoid detailed calculations during negotiation, use approximate values or price ranges, finalise exact numbers only during recording and prioritise decisions over precision.

4. Simulation tool and facilitation guide

The simulation begins with a non-scoring Round 0 orientation followed by four gameplay rounds. Each gameplay round uses the same five-phase structure to maintain flow and learning. The standard rhythm is: input, negotiation, decision, resolution and recording. A normal gameplay round takes about 7 minutes, plus any facilitator explanation needed for the card in play.

Phase	Step	Timing	Facilitator focus
Input	1	30-60 seconds	Introduce the round context or card briefly. Do not begin negotiation yet.
Negotiation	2	2 minutes	Players negotiate agreements, supply, demand, timing and financing.
Decision	3	1 minute	Players confirm agreements and choose a maximum of two actions.
Resolution	4	2-3 minutes	Facilitator resolves production, transport, trades, investments, payments and card effects.
Recording	5	1 minute	Record outcomes, payments, deliveries, score changes and system status.

Required outcomes per round

- Clear agreements: who does what
- Approximate quantities and prices
- Confirmed deliveries where applicable
-

Situation	Automatic effect
No Farmer-Contractor-Processor supply agreement	-10 t harvestable supply next round, or Contractor is idle if bypassed without agreement.
No Builder-Customer / Developer agreement	Project cannot finish; final system performance cannot exceed Partial success.
No financing by end of R1	Builder enters Limited Operation Mode until financing, grant or deposit is secured (-5 points if unresolved at final scoring).
No permit or approval by end of R2	Construction is delayed (-2 points) and no completed building token may be awarded until approval is recorded.

Round 0: Orientation Pulse (5 minutes)

No negotiation allowed and no scoring is applied. Each role answers: "What do I need to say yes?" and "What blocks me from acting?" The Orchestrator maps dependencies and highlights missing links.

Round	Name	Objective	Required focus
1	Sourcing & Contracts	Establish a functioning value chain	Supply, harvesting/transport, production terms, Builder-Customer / Developer

Round	Name	Objective	Required focus
			agreement and initial financing/policy support
2	Production & Coordination	Execute the value chain	Draw an Event card, adjust agreements, move materials and trigger payments
3	Crisis Management	Maintain flow under disruption	Draw a Crisis card; all contracts may be renegotiated
4	Expansion & Reflection	Complete the project and evaluate the system	Draw an Opportunity card, finalise deliveries and decide on scaling or improvements

Wrap-up questions

- How did the Orchestrator influence outcomes across rounds?
- What conflicts were hardest to resolve and why?
- How did sustainability considerations affect economic choices?
- What strategies maintained collaboration and trust?
- How can these lessons apply to real bioeconomy projects?
- How did your decisions influence environmental, social and economic impact along the value chain?

5. Player actions and money flow

In each round, players may choose a maximum of two actions from the available action set. They must prioritise because they cannot do everything in one round.

- Investing in capacity or development
- Producing or processing materials
- Trading resources with other players
- Forming partnerships or agreements
- Initiating innovation or new solutions

How money moves

To keep the simulation clear, fair and easy to manage, money is not exchanged continuously. The facilitator acts as the bank, confirms payments during the recording phase and records them on the Score Sheet. If no price is agreed, use the default reference prices below.

Payment type	Rule
Materials	Paid upon confirmed delivery. Typical flow: Customer / Developer -> Builder; Builder -> Processor; Processor -> Farmer and Contractor.
Services	Paid at the end of the round in which the service is completed. This includes design, compliance, coordination support and special transport services.
Grants	Paid immediately upon approval; no repayment required. Grants must support impact, learning, innovation, inclusion or sustainability.
Loans and investments	Released when agreements are made. Repayment, interest or ROI expectations are evaluated at final scoring.

Simplification rule

Do not perform detailed calculations during negotiation. Use agreed prices and rough estimates; finalise exact numbers only during the recording phase. If negotiations turn into calculations, the facilitator applies the default reference price or mitigation cost and moves on.

Production conversion rule

Use the standard conversion rate when resolving production: 1 ton raw hemp = 5 hempcrete units; one 10 t batch = 50 units. The Builder needs 50 units for one completed building.

Default reference prices

Use these values only when players do not agree a price quickly. Players may negotiate higher or lower prices, deposits, discounts, risk-sharing clauses or bonuses.

Item	Default value	Used by / note
Raw hemp	€1,000 per ton	Farmer sells to Processor; 10 t = €10,000.
Harvest and transport	€500 per ton	Contractor is paid for moving hemp from Farmer to Processor; 10 t = €5,000.
Processing cost	€5,000 per 10 t batch	Processor pays this to the bank when converting 10 t raw hemp into 50 units.
Hempcrete units	€800 per unit	Processor sells to Builder; 50 units = €40,000.
Architect design/compliance service	€5,000 per project	Paid to Architect when design or compliance support is completed.
Completed building payment	€55,000	Customer / Developer pays Builder on completion; deposits are negotiable.
Capacity investment	€10,000	Adds +5 t harvest/transport capacity or +25 processing units from the next round.
Emergency mitigation cost	€5,000	Default cost to repair, replace, speed up or document a problem when a card has no numeric cost.

6. Orchestrator and stakeholder roles

The Orchestrator is responsible for helping the value chain function as a connected system. They facilitate negotiations, help resolve conflicts, ensure agreements connect, keep financial and sustainability goals visible, support response to disruptions and push for decisions when discussions stall.

Orchestrator powers

Power	Use
Call for Decision	Forces a 30-second agreement or default outcome
Demand Missing Actor	Pauses negotiation until an absent role is included
System Summary	Requires the Facilitator to confirm current chain status publicly

Important clarification

The Orchestrator does not make decisions for others, cannot force agreements and must influence through communication, coordination and trust.

What counts as a working value chain?

- One complete material flow: Farmer -> Contractor -> Processor -> Builder -> Customer / Developer
- One financing solution covering the Builder's gap, if the Builder cannot pay upfront
- One permit or approval acknowledged by Government / Policymaker
- One confirmed Builder-Customer / Developer agreement

SECTION

Role overview table

A compact overview for facilitators. Full printable role cards follow in Annex 3.

Role	Main goal	Starting resources	Constraints	Negotiation levers	Impact contribution
Orchestrator	Make the value chain work as a system.	Influence only - no money or materials	Cannot control actors or force agreements	Communication • Timing • Mediation	System performance • Collaboration • Shared direction
Farmer	Sell hemp at a stable price and keep supply flowing.	10 tons raw hemp (+10 tons per round)	Max 10 t/round • 10% spoilage if unsold • Weather risks	Price • Delivery timing • Sustainability value	Carbon capture • Soil health • Local production
Harvesting Contractor	Harvest and move hemp efficiently.	Equipment • 10 t capacity per round	Limited capacity • Weather exposure • Breakdown risk	Price per ton • Scheduling priority • Transport services	Reduces waste • Improves material flow efficiency
Processor	Convert hemp into building materials profitably and reliably.	€20,000 • Capacity: 10 tons -> 50 units per round	Capacity limit • Dependent on supply timing and quality	Buy price • Sell price • Production priority	Enables low-carbon materials • Reduces emissions
Builder	Deliver the building on time and within budget.	€40,000 budget • Needs 50 hempcrete units	Budget gap • Delay penalties • Supply dependency	Material price • Deadlines • Financing terms	Delivers low-carbon construction solutions
Architect	Design a functional, compliant and sustainable building.	1 design capacity per round	Regulatory requirements • Limited capacity	Design complexity • Cost vs. performance balance	Energy efficiency • Long-term sustainability
Investor	Fund viable projects and achieve a return on investment.	€30,000 investment pool	Limited funds • Risk of delay or failure	Loan size • ROI expectations • Funding conditions	Enables scaling of sustainable solutions
Government / Policymaker	Support sustainable development through policy and regulation.	Policy tools: permits, standards, guidance	No direct funding • Must balance interests	Permit speed • Policy support • Public recognition	Drives low-carbon and responsible development
Philanthrope	Fund high-impact activities that	€20,000 grant fund (max	Cannot fund purely profit-	Grant size • Conditions • Timing	Environmental, social and

	are not purely market-driven.	€5,000 per actor)	driven activities • Limited budget	of support	educational value
Customer / Developer	Define demand, approve the final project and receive a high-quality, affordable and sustainable building.	€55,000 project budget	Budget cap • Delays reduce satisfaction • Final approval responsibility	Payment terms • Quality requirements • Sustainability expectations • Deposit options	Drives demand for sustainable construction

7. Facilitator tips

Manage time strictly

Enforce the five-phase timing structure in every round. Stop negotiation when time is up and move to decision, resolution and recording.

Push for decisions

Encourage decisions even with incomplete information. Do not allow perfect solutions to delay progress.

Activate all roles

Invite quieter roles into the discussion and prevent dominant players from controlling decisions.

Focus on the system

Ask how decisions affect the whole value chain and highlight dependencies between roles.

Use the System Tracker

Keep the board updated after each round and make missing links visible.

Emphasise trade-offs

Highlight cost vs sustainability, speed vs quality and individual vs system benefit.

Keep it simple

Use estimates and rough agreements. Prioritise flow over precision.

Connect to real-world learning

Relate decisions to actual value chain challenges and coordination issues.

SECTION

8. Winning criteria and card types

The goal is not individual success, but the ability of the group to create a functioning, resilient and sustainable value chain.

Dimension	Success means
System functionality	Material flow, financing, permit/approval and customer delivery are all confirmed.
Financial viability	Actors remain financially stable or have a realistic recovery plan; agreements are executable.
Sustainability and impact	Environmental and social considerations are converted into recorded actions, not only discussed.
Collaboration and coordination	Stakeholders collaborate, resolve conflicts and maintain trust across the full chain.
Completion evidence	A completed building token is awarded only when 10 t hemp, 50 hempcrete units, design, permit and customer approval are all recorded.

Card types

Card	Function	When used
Role Card	Defines each participant's role, goals, resources and constraints	At the start; used throughout
Starting Situation	Sets the initial conditions for the simulation	Round 1
Event Card	Introduces changes, opportunities or new conditions	Round 2
Crisis Card	Introduces disruption, conflict or risk	Round 3
Opportunity Card	Introduces growth, innovation or scaling options	Round 4

Important principle

Players must respond to the card within the time limit. If no response is agreed within the round, the facilitator applies the card impact. If the card gives only a narrative impact, use the default card-resolution effects below. There are no correct solutions, only workable responses.

Final scoring thresholds

Use the Score Sheet to total impact points, cooperation and unresolved penalties. The final classification must also reflect whether the physical value chain actually functioned.

Result	Threshold
Strong value chain	All four system conditions confirmed and 18+ total impact points; no unresolved Limited Operation Mode.
Partial success	At least three system conditions confirmed and 10-17 total impact points, or the project is viable but delayed.
System failure	Fewer than three system conditions confirmed, fewer than 10 total impact points, or the project cannot finish.

Default card-resolution effects

Use this table when a card does not provide a quantified effect. The facilitator may adjust one step up or down if the group response is clearly strong or clearly weak.

Card or issue	Default unresolved effect
Starting situation not addressed	No extra penalty, but record the missing agreement and apply any automatic effect from the round rules.
Event card not addressed	-2 impact points or -€5,000 shared cost, whichever fits the narrative best.
Opportunity card not acted on	No bonus is awarded; the opportunity expires at the end of the round.
Drought Hits Farmland	-3 t raw hemp available this round.
Permit Backlog	No building completion until approval is restored; -2 points if unresolved.
Investor Withdraws	Remove €10,000 committed financing or place Builder in Limited Operation Mode.
New Regulation / Policy Change	Architect and Government must spend one action each; otherwise -2 points and one-round delay.
Production Breakdown	Processor output is reduced by 25 units unless €5,000 repair or alternative processing is agreed.
Flood Damage	-2 t hemp or -10 hempcrete units, depending on where the loss occurs.
Rising Cost	Add +10% to unpaid material/service costs or apply -€5,000 shared cost.
Compliance Failure / Audit Check	-2 points and €5,000 penalty unless documentation responsibilities are assigned.
Conflict Escalation	Cooperation score for the round cannot exceed 2 unless mediation is agreed.
Delivery Delays	No completed building token this round unless the group

Card or issue	Default unresolved effect
	spends one action on acceleration.

SECTION

Annex 1. Glossary

Term	Definition	Term	Definition
Actor / Stakeholder	A participant in the value chain.	Biobased Materials	Building materials made from plants such as hemp, flax or cattail.
CO₂ Storage / Carbon Capture	Carbon absorbed by plants and stored in building materials.	Contract	Agreement about price, quantity, timing and conditions.
Conversion Rate	1 ton hemp = 5 hempcrete units.	Crisis Card	A serious disruption requiring renegotiation.
Event Card	A smaller shift or opportunity.	Impact	Environmental, social or educational value created.
Impact Grant	Funding for clear positive impact, not pure profit.	Investor ROI	Financial return at the end of the simulation.
Limited Operation Mode	One-round condition applied when an actor cannot afford required costs; reduces score by -5 points.	Negotiation Lever	Factor used to influence deals: price, timing, conditions or bonuses.
Orchestrator	Coordinating actor who aligns stakeholders and maintains progress.	Opportunity Card	Scaling, innovation or market growth option.
Payment Flow	Materials on delivery; services at end of round; grants/loans immediately upon approval; default prices apply if no price is agreed.	Penalty	Cost or operational consequence due to delay, non-compliance or unmet agreements.
Permit	Government approval for construction to proceed.	Philanthrope	Role providing grants for sustainability, innovation, education or community benefit.
Policy Tools	Permits, standards, planning guidance and recognition.	Processor	Actor who converts raw hemp into hempcrete or insulation materials.
Round	One phase of the simulation. There is a non-scoring orientation followed by four gameplay rounds.	Score Sheet	Tool for tracking money, materials, impact, cooperation and final outcomes.
Spoilage	Loss of raw hemp from storage; 10% per round if unsold.	Starting Situation Card	Card drawn in Round 1 to set initial conditions.
Sustainability Goals	Targets such as CO ₂ reduction, soil health, local sourcing and	Supply Chain	Farmer -> Contractor -> Processor -> Builder ->

	circularity.		Customer / Developer.
Time Pressure	Strict time limits that force prioritisation and coordination.	Trade-offs	Situations where improving one outcome compromises another.
Unit / Hempcrete Unit	One block or batch of hempcrete. The Builder needs 50 units.	Value Chain	All actors working together to create the final hemp building project.

Annex 2. Participant introduction script

A facilitator script for starting the session.

Welcome

Today you will step into the world of biobased construction - a field where agriculture, industry, design, finance, policy and community needs come together to solve sustainability challenges. We will use a hands-on simulation called The Hemp Value Chain - The Orchestrator's Challenge.

Why this simulation?

Modern construction is changing. Cities and regions are searching for ways to lower emissions, support local economies and build healthier, more circular systems. Making this shift is not only a technical challenge - it is a coordination challenge.

Your task

You will play one of the key stakeholders in the hemp construction value chain. Each role comes with goals, resources, constraints, negotiation levers, risks and opportunities. Across four gameplay rounds you will negotiate agreements, respond to disruptions and make decisions that affect the entire chain.

The Orchestrator's role

One participant will take on the central coordinating role. The Orchestrator does not produce, invest or control resources. Their task is to align stakeholders, support collaboration and maintain progress across the chain.

How you win

The goal is **not** to beat each other. The team succeeds when a full hemp construction project is completed, actors remain financially stable, sustainability goals are integrated, trust remains high and the Customer / Developer receives an acceptable project.

Let's begin

In a moment, I will distribute your role cards. Read them carefully. Your goals, constraints and incentives matter. This is a shared challenge: the strength of the chain depends on how well you work together.

SECTION

Annex 3. Printable role cards

Print single-sided or double-sided, cut along the card edges, and give one role card to each participant.

Role-card design

Each card uses the same structure: goal, actions, resources, limits, levers and impact. This makes negotiation faster because each participant can scan the card in seconds.



ORCHESTRATOR

Central coordinating role

ROLE CARD

Goal Make the value chain work as a system.

You do

Coordinate • Align stakeholders • Resolve conflicts

You have

Influence only - no money or materials

Limits

Cannot control actors or force agreements

Levers

Communication • Timing • Mediation

Impact contribution

System performance • Collaboration • Shared direction

Your success depends on the full chain, not individual gain.



FARMER

Raw hemp supplier

ROLE CARD

Goal Sell hemp at a stable price and keep supply flowing.

You do

Supply hemp • Maintain quality • Negotiate price and delivery

You have

10 tons raw hemp (+10 tons per round)

Limits

Max 10 t/round • 10% spoilage if unsold • Weather risks

Levers

Price • Delivery timing • Sustainability value

Impact contribution

Carbon capture • Soil health • Local production

Negotiate clearly. Keep the value chain moving.

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HC

HARVESTING CONTRACTOR
Harvesting and transport

ROLE CARD

Goal
Harvest and move hemp efficiently.

You do
Harvest • Transport • Coordinate timing

You have
Equipment • 10 t capacity per round

Limits
Limited capacity • Weather exposure • Breakdown risk

Levers
Price per ton • Scheduling priority • Transport services

Impact contribution
Reduces waste • Improves material flow efficiency

Negotiate clearly. Keep the value chain moving.

PR

PROCESSOR
Materials producer

ROLE CARD

Goal
Convert hemp into building materials profitably and reliably.

You do
Buy hemp • Produce hempcrete • Supply the Builder

You have
€20,000 • Capacity: 10 tons -> 50 units per round

Limits
Capacity limit • Dependent on supply timing and quality

Levers
Buy price • Sell price • Production priority

Impact contribution
Enables low-carbon materials • Reduces emissions

Negotiate clearly. Keep the value chain moving.

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BUILDER Project delivery

ROLE CARD

Goal Deliver the building on time and within budget.

You do

Buy materials • Build • Secure funding

You have

€40,000 budget • Needs 50 hempcrete units

Limits

Budget gap • Delay penalties • Supply dependency

Levers

Material price • Deadlines • Financing terms

Impact contribution

Delivers low-carbon construction solutions

Negotiate clearly. Keep the value chain moving.

ARCHITECT Design and compliance

ROLE CARD

Goal Design a functional, compliant and sustainable building.

You do

Design • Adapt plans • Support Builder and Customer

You have

1 design capacity per round

Limits

Regulatory requirements • Limited capacity

Levers

Design complexity • Cost vs. performance balance

Impact contribution

Energy efficiency • Long-term sustainability

Negotiate clearly. Keep the value chain moving.

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INVESTOR

Finance and returns

ROLE CARD

Goal Fund viable projects and achieve a return on investment.

You do

Evaluate proposals • Provide loans or investments • Set conditions

You have

€30,000 investment pool

Limits

Limited funds • Risk of delay or failure

Levers

Loan size • ROI expectations • Funding conditions

Impact contribution

Enables scaling of sustainable solutions

Negotiate clearly. Keep the value chain moving.



GOVERNMENT / POLICYMAKER

Permits and standards

ROLE CARD

Goal Support sustainable development through policy and regulation.

You do

Approve permits • Set standards • Guide the system

You have

Policy tools: permits, standards, guidance

Limits

No direct funding • Must balance interests

Levers

Permit speed • Policy support • Public recognition

Impact contribution

Drives low-carbon and responsible development

Negotiate clearly. Keep the value chain moving.

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PH

PHILANTHROPE
Impact grant maker

ROLE CARD

Goal
Fund high-impact activities that are not purely market-driven.

You do
Give grants • Support innovation • Enable collaboration

You have
€20,000 grant fund (max €5,000 per actor)

Limits
Cannot fund purely profit-driven activities • Limited budget

Levers
Grant size • Conditions • Timing of support

Impact contribution
Environmental, social and educational value

Negotiate clearly. Keep the value chain moving.

CU

CUSTOMER / DEVELOPER
Demand owner

ROLE CARD

Goal
Receive a high-quality, affordable and sustainable building.

You do
Negotiate • Approve project • Influence quality

You have
€55,000 budget

Limits
Budget cap • Delays reduce satisfaction

Levers
Payment terms • Quality requirements • Sustainability expectations

Impact contribution
Drives demand for sustainable construction

Negotiate clearly. Keep the value chain moving.

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Annex 4. Score Sheet

The score sheet helps players and facilitators record key results after each round: financial outcomes, material flow, sustainability results and cooperation/trust.

1. System overview

Round	Value chain status	Economy (€)	Impact	Cooperation	Notes
R1	☐ Not working ☐ Partial ☐ Working	€ _____	_____	1 2 3 4 5	
R2	☐ Not working ☐ Partial ☐ Working	€ _____	_____	1 2 3 4 5	
R3	☐ Not working ☐ Partial ☐ Working	€ _____	_____	1 2 3 4 5	
R4	☐ Not working ☐ Partial ☐ Working	€ _____	_____	1 2 3 4 5	

2. Quick role status

Role	Profit / Loss	Key issue
Farmer	+ / -	
Harvesting Contractor	+ / -	
Processor	+ / -	
Builder	+ / -	
Architect	+ / -	
Investor	+ / -	
Government / Policymaker	+ / -	
Philanthrope	+ / -	
Customer / Developer	+ / -	

3. Impact tracking and penalties

Action / issue	Points
Complete material flow confirmed	+4
Confirmed financing solution	+2
Permit / approval confirmed	+2
Builder-Customer / Developer agreement confirmed	+2
Completed building delivered	+5
Biobased materials used	+2
Local sourcing	+1
CO ₂ reduction effort	+2
Collaboration across roles	+1 per round
Innovation / improvement	+2
Unresolved Limited Operation Mode	-5
No permit by end of R2	-2
Delays / non-delivery	-2
Conflict blocking chain	-2
Waste / spoilage	-1

4. Final results

Final scoring

Economy total: € _____ Impact total: _____ points Cooperation average: _____

System conditions confirmed: ☐ Material flow ☐ Financing ☐ Permit / approval ☐ Builder-Customer / Developer agreement

System performance:

- ☐ Strong value chain: all four system conditions, 18+ points, no unresolved Limited Operation Mode
- ☐ Partial success: at least three system conditions and 10-17 points, or viable but delayed
- ☐ System failure: fewer than three system conditions, fewer than 10 points, or project cannot finish

SECTION

Annex 5. Starting Situation Cards

Draw one card in Round 1 to create shared starting conditions.

STARTING SITUATION

Regional Pilot Project

SITUATION

A regional programme offers funding to support the first hemp building in your area. The funding is not enough to cover the full project.

CHALLENGE

Different actors need funding to participate, but the total available amount is limited.

TASK

Negotiate how to:

- allocate funding between actors
- secure additional financing if needed
- ensure the value chain can function

Time rule

Decide within this round.

STARTING SITUATION

The First Hemp House

SITUATION

A public project is ready to build the first hemp house with a fixed overall budget.

CHALLENGE

The budget is tight, and all actors must agree on prices and roles to make the project viable.

TASK

Negotiate how to:

- distribute the budget across the value chain
- balance cost, quality and sustainability
- secure agreements to start the project

Time rule

Decide within this round.

STARTING SITUATION

Green Building Festival

SITUATION

You have the opportunity to showcase a hemp building at a public event.

CHALLENGE

You must deliver a prototype quickly while managing limited resources.

TASK

Decide how to:

- prioritise time vs. quality
- allocate resources across actors
- ensure delivery within the deadline

Time rule

Decide within this round.

STARTING SITUATION

New Construction Mandate

SITUATION

New policy requires the use of biobased materials in public construction projects.

CHALLENGE

You have the opportunity to participate, but must meet cost and performance requirements.

TASK

Negotiate how to:

- align supply, design and construction
- meet requirements within budget
- coordinate roles to secure the project

Time rule

Decide within this round.



STARTING SITUATION

Investor Looking for Green Projects

SITUATION
An investor is interested in funding sustainable construction projects.

CHALLENGE
The investor expects both financial return and measurable impact.

TASK
Decide how to:

- a shared business case
- how funds are distributed
- how risk and return are managed

Time rule

Decide within this round.

STARTING SITUATION

Hemp Harvest Ready

SITUATION
The hemp harvest is ready, but cannot be stored indefinitely.

CHALLENGE
If no agreement is made quickly, part of the harvest will be lost.

TASK
Negotiate how to:

- secure purchase agreements
- align timing across the chain
- prevent losses and delays

Time rule

Decide within this round.

STARTING SITUATION

Community Housing Project

SITUATION
A housing cooperative wants multiple affordable hemp homes.

CHALLENGE
The total budget is fixed, and prices must stay low while ensuring all actors can participate.

TASK
Negotiate how to:

- adjust prices across the chain
- balance affordability and profitability
- ensure the project remains viable

Time rule

Decide within this round.

STARTING SITUATION

University Collaboration

SITUATION
A university offers support for research and innovation in the project.

CHALLENGE
The support does not cover all costs and requires collaboration across actors.

TASK
Decide how to:

- co-finance the project
- distribute responsibilities
- integrate innovation without disrupting progress

Time rule

Decide within this round.



STARTING SITUATION

Rural Development Fund

SITUATION
A regional fund supports projects that create local jobs and economic activity.

CHALLENGE
Funding depends on demonstrating clear local impact.

TASK
Negotiate how to:

- allocate resources to maximise local value
- balance impact with financial viability
- align roles to meet funding criteria

Time rule

Decide within this round.

STARTING SITUATION

Private Customer Dream Home

SITUATION
A private customer wants a sustainable hemp home within a fixed budget and timeframe.

CHALLENGE
The customer expects both quality and sustainability, while the budget is limited.

TASK
Negotiate how to:

- meet customer expectations
- manage cost and risk
- coordinate the full value chain to deliver the project

Time rule

Decide within this round.

SECTION

Annex 6. Event Cards

Draw one card in Round 2 to test adaptation and renegotiation.

EVENT

1. Surge in Demand

SITUATION

Demand for hemp construction increases unexpectedly.

CHALLENGE

The value chain cannot immediately meet the higher demand.

TASK

Decide how to:

- increase production or supply
- prioritise customers or deliveries
- balance speed, cost and quality

Time rule

Decide within this round.

EVENT

Customer Scepticism

SITUATION

Customers begin to doubt the quality of hemp construction.

CHALLENGE

Demand drops unless confidence is restored.

TASK

Decide how to:

- rebuild trust
- invest in demonstration or communication
- share costs across the value chain

Time rule

Decide within this round.

EVENT

Green Housing Grants

SITUATION

New public funding becomes available for sustainable construction.

CHALLENGE

The funding is limited and must be allocated strategically.

TASK

Negotiate how to:

- distribute funding
- prioritise actors or activities
- maximise overall impact

Time rule

Decide within this round.

EVENT

Material Innovation Fair

SITUATION

A new material or process improves efficiency and sustainability.

CHALLENGE

Adopting it requires investment and coordination.

TASK

Decide how to:

- fund the innovation
- share benefits and risks
- integrate it into the value chain

Time rule

Decide within this round.

EVENT

5. Policy Change

SITUATION
New regulations introduce additional requirements.

CHALLENGE
Compliance may delay the project and increase costs.

TASK
Negotiate how to:

- manage compliance
- share responsibilities
- maintain project progress

Time rule

Decide within this round.

EVENT

Media Spotlight

SITUATION
The project receives strong positive media attention.

CHALLENGE
Demand increases, but expectations rise as well.

TASK
Decide how to:

- respond to increased demand
- scale responsibly
- maintain quality and credibility

Time rule

Decide within this round.

EVENT

Training Opportunity

SITUATION
A training opportunity can improve skills and efficiency.

CHALLENGE
Participating requires time and coordination.

TASK
Decide how to:

- allocate time and resources
- balance short-term delays with long-term gains

Time rule

Decide within this round.

EVENT

Audit and Compliance Check

SITUATION
Authorities require documentation and compliance checks.

CHALLENGE
Administrative work slows down the process.

TASK
Decide how to:

- handle compliance requirements
- distribute responsibilities
- maintain trust and efficiency

Time rule

Decide within this round.



EVENT

Efficiency Improvement

SITUATION

A new system can improve coordination and reduce waste.

CHALLENGE

It requires agreement and effort from multiple actors.

TASK

Negotiate how to:

- adopt the system
- share costs and benefits
- align all stakeholders

Time rule

Decide within this round.

EVENT

University Collaboration

SITUATION

An external partner offers support or new capabilities.

CHALLENGE

Integrating them may disrupt existing agreements.

TASK

Decide how to:

- integrate the new partner
- adjust roles and responsibilities
- maintain balance in the value chain

Time rule

Decide within this round.



SECTION

Annex 7. Crisis Cards

Draw one card in Round 3 to test resilience under disruption.

CRISIS

Drought Hits Farmland

SITUATION
A severe drought reduces the available hemp supply.

IMPACT
Less raw material is available, and not all actors can be supplied.

TASK
Negotiate how to:

- prioritise limited supply
- adjust contracts and expectations
- prevent the value chain from breaking

Time rule Decide within this round.

CRISIS

Permit Backlog

SITUATION
Government approvals are delayed unexpectedly.

IMPACT
Construction cannot proceed as planned.

TASK
Decide how to:

- manage delays
- adjust timelines and agreements
- maintain collaboration despite frustration

Time rule Decide within this round.

CRISIS

Investor Withdraws

SITUATION
A key investor pulls out of the project.

IMPACT
A funding gap threatens the continuation of the value chain.

TASK
Negotiate how to:

- secure alternative financing
- redistribute financial risk
- keep the project moving

Time rule Decide within this round.

CRISIS

New Regulation

SITUATION
New regulations introduce additional requirements.

IMPACT
The project becomes more complex and time-consuming.

TASK
Decide how to:

- manage compliance
- share responsibility
- continue progress without major delays

Time rule Decide within this round.



CRISIS

Production Breakdown

SITUATION
The processing facility experiences a breakdown.

IMPACT
Production is reduced or delayed.

TASK
Negotiate how to:

- manage supply disruption
- find alternative solutions
- minimise impact on the chain

Time rule

Decide within this round.

CRISIS

Flood Damage

SITUATION
Part of the harvested hemp is lost due to poor storage conditions.

IMPACT
Available supply decreases unexpectedly.

TASK
Decide how to:

- adjust supply agreements
- absorb or redistribute losses
- maintain system flow

Time rule

Decide within this round.

CRISIS

Rising Cost

SITUATION
Costs increase across the value chain, such as transport, energy or labour.

IMPACT
Profit margins shrink for all actors.

TASK
Negotiate how to:

- adjust prices
- share increased costs
- balance financial stability and collaboration

Time rule

Decide within this round.

CRISIS

Compliance Failure

SITUATION
An audit reveals missing documentation or non-compliance.

IMPACT
The project faces penalties and reputational risk.

TASK
Decide how to:

- resolve compliance issues
- restore trust
- prevent further disruption

Time rule

Decide within this round.



CRISIS

Conflict Escalation

SITUATION

A conflict between two key actors escalates.

IMPACT

Cooperation breaks down and agreements are at risk.

TASK

Negotiate how to:

- resolve the conflict
- rebuild trust
- restore collaboration across the chain

Time rule

Decide within this round.

CRISIS

Delivery Delays

SITUATION

A critical delivery does not arrive on time.

IMPACT

Construction and coordination are disrupted.

TASK

Decide how to:

- manage delays
- adjust timelines
- maintain the project despite disruption

Time rule

Decide within this round.



Annex 8. Opportunity Cards

Draw one card in Round 4 to create strategic choices and long-term value.

OPPORTUNITY

Research Breakthrough

SITUATION

A new hemp mix reduces curing time by 15%.

IMPACT

Processor efficiency increases by +10% (€2,000 saved).

TASK

Decide how to:

- distribute the benefits across the value chain
- manage access to the new technology
- ensure fair collaboration

Time rule

Decide within this round.

OPPORTUNITY

Celebrity Endorsement

SITUATION

A well-known public figure promotes hemp construction.

IMPACT

Orders double this round. Potential profit +€10,000.

TASK

Decide how to:

- scale production quickly
- maintain quality under pressure
- coordinate increased demand across actors

Time rule

Decide within this round.

OPPORTUNITY

Export Opportunity

SITUATION

A foreign buyer offers a large contract.

IMPACT

Revenue €25,000; additional logistics cost €5,000.

TASK

Decide how to:

- balance export vs. local commitments
- organise logistics and delivery
- manage risk and capacity

Time rule

Decide within this round.

OPPORTUNITY

Local Grant Competition

SITUATION

An innovation fund opens for applications this round.

IMPACT

Grant available: €10,000.

TASK

Decide how to:

- form a collaboration to apply
- define a strong joint proposal
- allocate potential funding

Time rule

Decide within this round.



OPPORTUNITY

5. Circular Economy Award

SITUATION

The project receives recognition for sustainability performance.

IMPACT

€5,000 bonus. Visibility +5.

TASK

Decide how to:

- use visibility to attract new partners or customers
- strengthen market position
- reinvest the financial bonus

Time rule

Decide within this round.

OPPORTUNITY

Carbon Credit Scheme

SITUATION

A carbon credit system becomes available.

IMPACT

Earn €1,000 per 10t CO₂ saved (max €5,000).

TASK

Decide how to:

- measure and document CO₂ savings
- distribute financial benefits
- integrate carbon strategy into decisions

Time rule

Decide within this round.

OPPORTUNITY

Energy Partnership

SITUATION

A renewable energy company proposes collaboration.

IMPACT

15% cost reduction (€3,000 saved).

TASK

Decide how to:

- integrate renewable solutions into the project
- share cost savings
- align long-term sustainability goals

Time rule

Decide within this round.

OPPORTUNITY

Corporate Buyer Interest

SITUATION

A large corporate client shows interest in a major project.

IMPACT

Contract value €50,000; delivery within 4 months.

TASK

Decide how to:

- organise a scalable delivery setup
- coordinate across the full value chain
- manage timeline and risk

Time rule

Decide within this round.



OPPORTUNITY

EU Consortium Invitation

SITUATION
You are invited to join an EU-funded consortium.

IMPACT
Funding €20,000, requires €10,000 co-financing.

TASK
Decide how to:

- secure co-financing
- distribute roles in the consortium
- assess strategic value vs. resource demand

Time rule

Decide within this round.

OPPORTUNITY

10. Innovation Showcase

SITUATION
The value chain is invited to present the hemp project at a major innovation showcase attended by investors, policymakers and potential clients.

IMPACT
Participation cost: €2,000. Gain 3 new potential clients (future revenue: €15,000). Visibility and credibility increase.

TASK
Decide how to:

- organise and fund participation
- present the value chain as a coordinated system
- allocate communication and storytelling roles
- convert visibility into future agreements

Time rule

Decide within this round.



Annex 9. Simulation money

Print enough notes to create €200,000-€250,000 in total simulation money.





Annex 10. Tokens

Use tokens to track raw hemp, hempcrete units and completed buildings.

