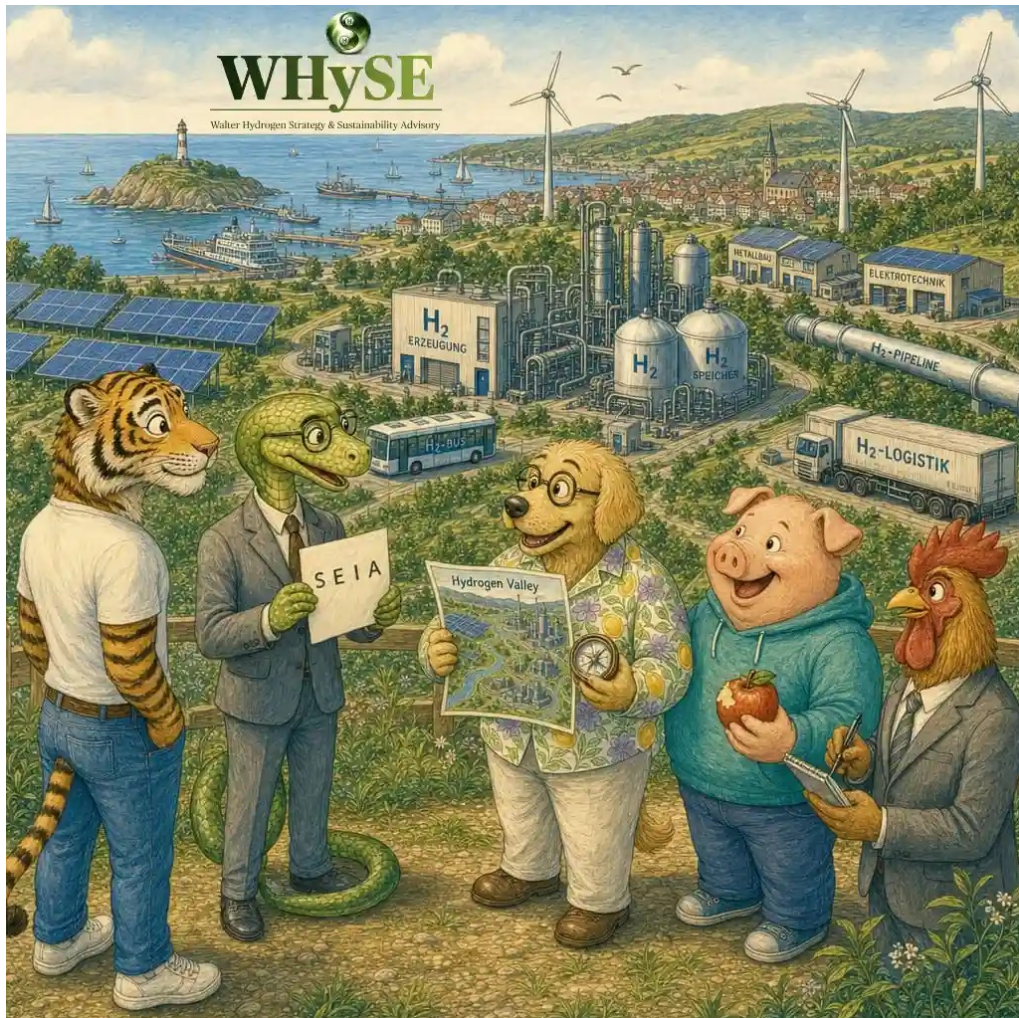


WHySE Compass Landmark 5

SEIA - Social and Environmental Impact Assessment



Four letters from Brussels distracted Pig from his apple

"S-E-I-A."

"Pardon?" Pig looked up from his apple.

"Pronounced: SEIA," said Snake. "A new acronym from Brussels." He held up a piece of paper.

Dog looked down into the valley from his Hydrogen Valley map. Below lay hydrogen generators, storage facilities, pipelines, industrial buildings, buses, and a harbour.

"So today we'll talk about what this means for a Hydrogen Valley. At WHySE, it's a patch of H₂ terrain."

Rooster pulled out his clipboard. "And how do we demonstrate that?"

Tiger stood a little apart and looked at the facilities in the valley. “And how do we leave enough room for innovation?”

Dog nodded. “That’s exactly why it’s worth taking a look.”

What does SEIA stand for?

SEIA stands for **Social** and **Environmental Impact Assessment**.

In simple terms: it is an assessment of social and environmental impacts.

Or in WHySE language:

SEIA looks at what a hydrogen project means for people, the environment, the economy, and the region.

For a Hydrogen Valley, looking only at the technology is rarely enough. A valley connects many parts: production, storage, transport, use, industry, mobility, local infrastructure, jobs, supply chains and the people who live with the project.

Pig looked out over the valley. “So SEIA asks: what does the whole thing bring to the local area?”

“Yes,” said Dog. “And also: what changes because of it? Who benefits? Who is affected? Which impacts arise directly in the project, along the supply chain and in the region?”

Snake placed the note on the table. “Brussels wants to understand more clearly what such projects actually do.”

Dog nodded. “That is the point. A Hydrogen Valley should be more than a collection of good technical building blocks. It should show which economic, social and environmental effects it creates.”

Why SEIA matters for Hydrogen Valleys

A Hydrogen Valley brings together many actors and many applications.

A water electrolyser rarely stands alone. It needs electricity, water, land, permits, customers, pipelines, storage, operation, maintenance and people with the right skills. It may supply buses, a factory, a port or local infrastructure. It may create jobs. It may change regional supply chains. It may improve air quality. It may also raise questions around land, water or transport.

SEIA helps make these impacts visible.

Rooster looked at his clipboard. “So it is all about data?”

"Data matters," said Dog. "But SEIA asks more than: how many tonnes of hydrogen are produced? It asks: what changes in the wider environment of the project?"

Pig chewed thoughtfully. "So employers are part of this too?"

"Yes," said Dog. "If a Hydrogen Valley needs new skills, creates new jobs or strengthens companies in the region, that is part of the impact."

Tiger crossed his arms. "And if a start-up brings in a new technology?"

"That is part of the picture as well," said Dog. "Innovation, knowledge transfer and regional skills all matter."

Snake raised his head. "And the picture should be robust."

"Exactly," said Dog. "SEIA is not a nice promise. It is a structured look at impact."

What SEIA looks at

Dog spread the map out further. "Imagine we look down on the valley from above," he said. "Then we see several levels."

First: direct impacts

These are impacts that arise directly from the project.

For example:

- jobs during construction and operation
- contracts for planning, construction, operation, and maintenance
- investments in plants and infrastructure
- training needs for teams
- changes in energy supply and mobility

Rooster nodded. "That can be often measured quite well."

"Yes," said Dog. "That is where evidence-based analysis begins."

Second: indirect impacts

These are impacts along the supply chains.

When a Hydrogen Valley requires components, services, maintenance, construction work or operating resources, this creates effects for suppliers, service providers and partners.

Pig looked at the factory buildings in the valley. "So it matters whether companies in the region are involved?"

"Yes," said Dog. "Regional supply chains can be an important part of the impact."

Third: induced impacts

These are effects that arise because income, contracts and new activities spread further into the region.

People work on the project. Companies award contracts. Knowledge remains local. New skills develop.

Tiger looked down into the valley again. "So a Hydrogen Valley is also a learning environment."

Dog smiled. "Very well put."

SEIA is more than an environmental assessment

Snake tapped the piece of paper.

"The word Environmental sounds like the environment."

"Yes," said Dog. "And Social sounds like people. Both belong together."

SEIA looks at environmental and social impacts. In practice, economic effects often belong in the same discussion because they are closely linked to social effects.

A Hydrogen Valley can contribute to defossilisation, build new skills, strengthen local value creation or improve quality of life. At the same time, it can raise questions:

- Which areas will be used?
- How will water be used?
- Which transport flows will arise?
- Which groups are affected?
- Who is involved?

Rooster picked up his pen. "Then we need clear terms."

"Yes," said Dog. "Otherwise, impact quickly turns into wishful thinking."

Common misunderstandings

Pig placed the apple on the table. "So is SEIA just an environmental report?"

Dog shook his head gently. "It is broader. SEIA looks at social and environmental impacts and places them in the context of the project."

Rooster asked: "So is SEIA simply a report for the funding body?"

"It can be part of a funding logic," said Dog. "Its value begins earlier. SEIA helps a project team understand the project before decisions become too narrow."

Tiger looked at the map. "Does SEIA slow down innovation?"

Dog looked at him. "At its best, SEIA gives innovation a secure frame. New technologies need trust. And trust grows when impacts are examined openly."

Snake added: "Anyone who claims impact should be able to explain it later."

Dog nodded. "Exactly. SEIA helps turn good intentions into a solid basis."

The Creatures perspectives

Snake brings the regulatory and funding perspective.

He asks:

"What requirements apply? What impact was promised? Which groups were involved? What evidence is available?"

Rooster thinks about evidence, data and the audit trail.

He asks:

"Which indicators do we use? Who collects them? How do we show what has actually been achieved?"

Pig looks at benefits and everyday life.

He asks:

"Who uses the hydrogen? Which jobs are created? Are the costs manageable? Does the project help the people in the valley?"

Tiger looks at new technologies and new business models.

He asks:

"How do we make room for new ideas while keeping impact in view?"

Dog looked around the table.

"That is why all of you matter. SEIA needs regulation, evidence, practical benefit and innovation in one picture."

Rooster's checklist

Rooster cleared his throat.

"I'll write that down."

For an SEIA in a Hydrogen Valley, the project team should clarify at least five questions:

- Which social, environmental and economic impacts do we expect?
- Which affected groups and involved parties should be included early?
- Which direct, indirect and induced impacts are we looking at?
- Which data, indicators and qualitative observations do we need?
- How do we document assumptions, methods, results and open questions?

Rooster looked at his clipboard. "That is something we can work with."

"Yes," said Dog. "And it helps explain later what the project actually achieved."

The plain-language translation

Dog rolled the map up a little.

"When someone says SEIA," he explained, "they usually mean this: we have a close look at what a hydrogen project does to the environment, people, jobs, the region and everyday life."

Pig picked up the apple again. "So it is more than a piece of paper for the drawer."

Dog nodded. "It is a view of the whole valley."

Snake smiled. "And of whether the promises hold."

Tiger looked at the plants in the valley. "So SEIA is a reality check for impact."

Dog smiled. "A good way to put it."

What SEIA can achieve

SEIA helps a Hydrogen Valley describe its impact more clearly.

It shows where positive effects can arise: jobs, regional value creation, new skills, knowledge transfer, improved supply, new applications and contributions to defossilisation.

It also helps bring questions to the surface early: land use, water, acceptance, supply chains, working conditions, participation, data availability and evidence.

That makes SEIA part of good project development.

Rooster closed his clipboard. "So SEIA is not just an extra task at the end."

Dog looked at him. "It is a perspective that can help from the start."

Pig nodded slowly. "Because a Hydrogen Valley is more than technology."

"Exactly," said Dog. "It is a patch of H₂ terrain. And terrain is best understood when you look at the whole landscape."

If you only want to remember one sentence:

SEIA shows what a Hydrogen Valley means for the environment, people, jobs and the region.

Sources and references

The technical reference point for this milestone is the work by the **Clean Hydrogen Partnership / Hydrogen Valleys Facility / Roland Berger, 2025** on assessing the social and economic impacts of Hydrogen Valleys.

SEIA can be structured differently depending on the project, funding context and region. What matters is the underlying principle: understand impacts early, involve affected and involved groups, document assumptions clearly and make results transparent.

Note:

This milestone explains SEIA as a guiding concept within the H₂ terrain. It does not replace a project-specific environmental assessment, a planning permission application or a legal assessment.