THE SCRAMBLE FOR HYDROGEN IN SOUTH AFRICA

How frontline communities are impacted by the EU's green extractivism

Corporate Europe Observatory

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1. EXECUTIVE SUMMARY

South Africa is one of the countries that the EU has identified as a potential provider for its huge projected import needs for green hydrogen. The European Commission, the hydrogen lobby, and countries such as Germany and the Netherlands are important actors behind the hydrogen fever currently gripping South Africa. Europe's powerful hydrogen proponents have enthusiastically presented this partnership as a win-win scenario: European countries will reduce their emissions, while South Africa can boost its economy, decarbonise its industry and create hundreds of thousands of jobs.

Yet the voices of the people who will be directly affected by these projects are completely absent from the European hydrogen debate. In May 2024, Corporate Europe Observatory visited frontline communities in South Africa that will be affected by planned green hydrogen projects to hear their perspectives.

This report presents the testimonies of communities in Boegoebaai, where petrochemical giant Sasol is planning the country's biggest green hydrogen project with the ambition of producing some 400,000 tons of green hydrogen per year. Local communities, who have had little or no consultation about this scheme, are facing a massive land grab and the destruction of their fishing grounds and cultural heritage.

For decades, communities in the Vaal region have endured heavy air, soil and water pollution resulting from the operations of steel producer ArcelorMittal South Africa (AMSA) and Sasol. Although these companies are now jumping on the hydrogen bandwagon as a way to greenwash their dirty businesses, local people complain that their interests have once again been bypassed.

The report also brings testimonies from mining communities in Ermelo, where Sasol is planning hydrogen and ammonia projects to partly substitute coal as feedstock for its products, and Limpopo, where mining giant Anglo American is using the promise of hydrogen to inject new life into its business. These stories from the ground have a common thread: no community consultation, the appropriation of resources like land, water and minerals, and the dumping of negative impacts onto local people.

Key findings:

These testimonies reinforce concerns about the structural impacts of green hydrogen projects on exporting countries and communities on various fronts.

- **Land rights:** Wind and solar farms to feed hydrogen factories with renewable energy, as well as ports and pipelines for hydrogen transport, all require vast areas of land. This can lead to the **displacement of communities and the intensification of land conflicts**, as is already happening with communities around Boegoebaai, (where the indigenous Nama people fear losing 70,000 hectares of their land to Sasol's planned hydrogen cluster), or the villages surrounding the controversial Mogalakwena platinum mine in Limpopo province. Green hydrogen projects are often located in special economic zones (SEZ), which attract investors by making abundant land available to them and thereby infringe upon community land rights.
- **Access to water** South Africa would need around 13,680 Olympic swimming pools of water every year to reach the government's hydrogen production goals for 2050. The country is already confronted with **water scarcity**, and communities **lack access to clean water** for drinking needs and farming. This is painfully clear in the Vaal area, where ArcelorMittal and others have contaminated rivers and groundwater for decades. Thirsty green hydrogen projects risk worsening the situation.
- **Coastal destruction:** Green hydrogen poses **risks to South Africa's coastal communities that depend on fishing for their livelihoods and survival**. New mega ports and high traffic from fossil-fuelled tankers for hydrogen export could degrade fishing grounds and curtail sea access for communities, including the indigenous Nama people in Boegoebaai. Sea water desalination, which is needed to produce green hydrogen in arid regions, can also be severely damaging to marine environments.
- **Energy access:** Wasting precious renewable energy on energy-inefficient hydrogen, with much of it destined for export, is questionable in a country struggling with **energy poverty**. The hydrogen production envisioned by South Africa would require 39 gigawatts (GW) of wind and solar power generation capacity by 2035, and 80 GW by 2050. This is respectively four and eight times as much as the renewable energy capacity installed today. In addition, South Africa's energy transition would be delayed if renewable energy was diverted to hydrogen production, leaving coal and gas power plants to cover local needs.

The **EU** and some of its member groups have been fuelled by the hydrogen lobby to become **influential actors in South Africa's hydrogen future**.

- Through their involvement in export-oriented projects in South Africa, European businesses have become important drivers in the 'green extractivist' hydrogen model. Projects like Boegoebaai (in which the Port of Rotterdam is participating) and Saldanha Bay (involving Irish renewable companies and Luxembourg-headquartered steel giant ArcelorMittal) relegate **South Africa to an exporter of low-value added products and an importer of expensive technologies**. These schemes also threaten to significantly **increase South Africa's debt burden**, diverting funds from investment in other just transition solutions that would prioritise the people of South Africa.
- **Germany and the Netherlands have hydrogen agreements with South Africa,** both with a very strong export focus. Germany is expected to become the EU's largest hydrogen importer, counting on 50 to 70 per cent of its needs to be covered by imports – and even more after 2030. A large proportion of these imports are expected to pass through Dutch, Belgian and German ports.
- According to internal European Commission documents, **preparations for a deal on critical raw materials and green hydrogen between South Africa and the EU are ongoing**. The documents reveal EU interest in South Africa's mining profile in platinum group metals (PGMs), which are needed for the electrolysers that produce green hydrogen. South Africa has close to 90% of the world's reserves.
- Among the lobbyists for this deal is UK-based **Anglo American**, the world's biggest PGM mining company. It owns several controversial platinum mines in South Africa, including Mogalakwena, which is the world's largest open pit platinum mine. This mine's history is littered with violent evictions, violations of rights of residents in surrounding villages, and water and air contamination. Anglo American is **using hydrogen to make its business at the Mogalakwena mine appear sustainable.**

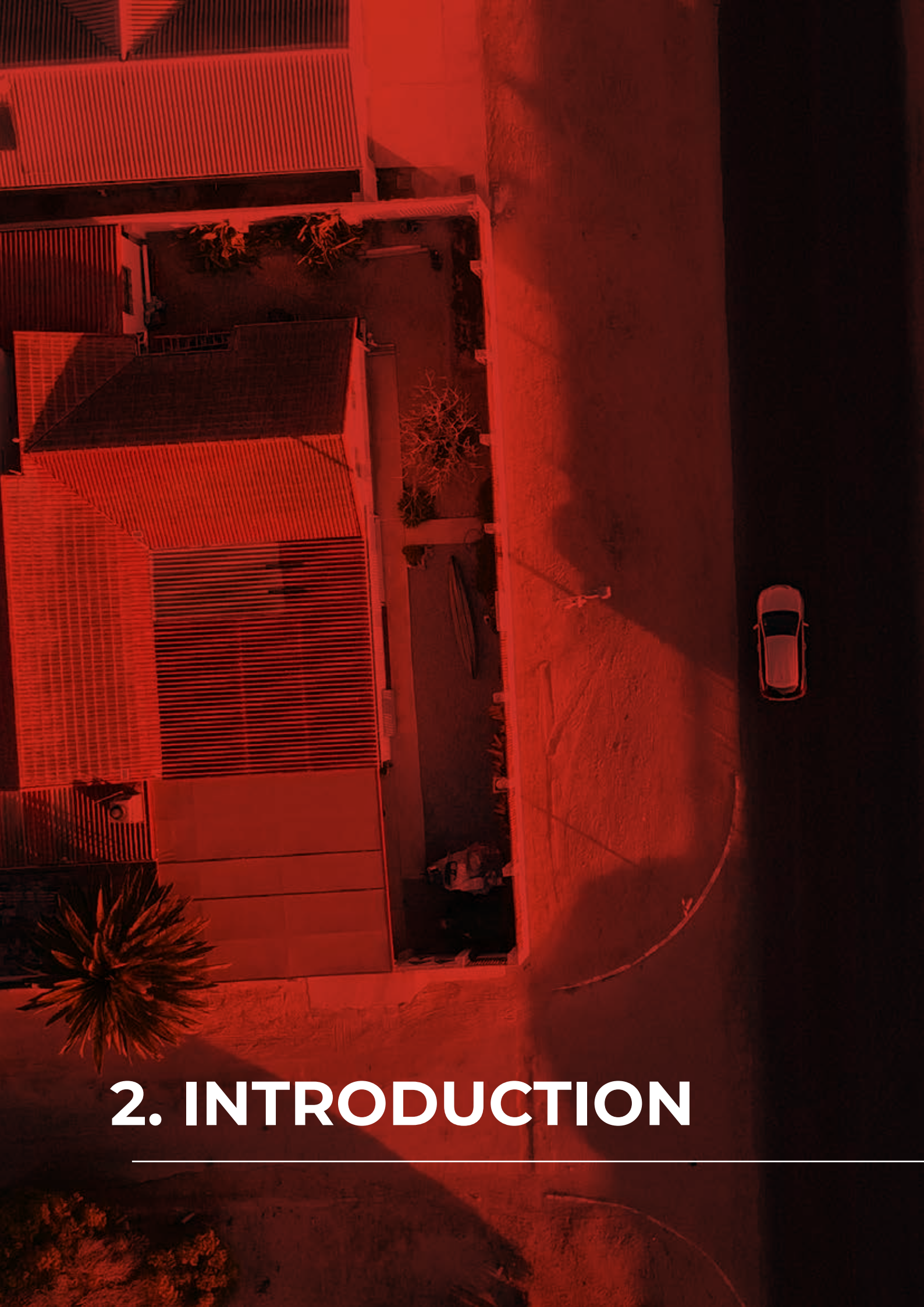
At the same time, the largest **South African polluters are also having enormous influenc**e and impact on the country's hydrogen plans.

- **Sasol and AMSA**, despite their decades-long track records in polluting and violating community rights, were invited to the expert panel that developed South Africa's Green Hydrogen Commercialisation Strategy starting in 2023. Civil society groups were excluded from this panel. Instead of having to pay for their 'hydrogen transition', these companies will receive huge amounts of public finance.
- **Sasol**, the main partner of the South African government in the development of green hydrogen projects, is a huge producer and user of hydrogen from fossil fuels, and there are many signs that it intends to continue down this road. In October 2023, the company told investors that green hydrogen was not part of its current decarbonisation plan, and the oil and gas exploration arm of the company plans to drill for even more fossil gas. This is a glaring example of how the promised transition to green hydrogen can be **used to delay the move away from fossil fuels** and slow down the energy transition.
- Internal Commission documents show how **Sasol** is **lobbying – with apparent success – to weaken the application of the EU criteria for renewable hydrogen**. Together with its German project partners **Linde** (chemicals) and **Enertrag** (renewable energy), the company has lobbied the European Commission and EU member states for permission to sell large quantities of its synthetic aviation fuels as renewable, even though the production at Sasol's dirty Secunda refinery complex is largely coal-based and only a small part of the input into the production process will be replaced with green hydrogen.

The report concludes that the hydrogen reality on the ground is much dirtier than what is presented ad nauseam in Europe, and that the outcomes of the quest for hydrogen are far from win-win. There's still a big question mark about whether the industry's 'hydrogen hype' will ever fully materialise, but no matter what happens, it will not lead to the decarbonisation of South Africa and big polluters will still end up on the winning side.

Europe cannot use green hydrogen to decarbonise at the expense of the Global South. Any just transition must necessarily be a global one, and it is important that European civil society organisations withdraw their support for green hydrogen imports. The scramble for hydrogen must be stopped in its tracks before it causes any more damage. The following are our recommendations:

- **The EU must scrap its hydrogen import targets and wake up to the dangerous and destructive impact of its green hydrogen plans on local communities and their environments. This will require tuning out the hydrogen lobby and listening to the voices of affected people.**
- **The EU should support South Africa with its own transition, rather than pushing it to sign new agreements that enable the further plundering of its resources. To bring everyone along in the just transition, South Africa must be able to make policies based on its own social and economic needs, and not those of the EU. An alternative development model should be based on energy justice and democracy rather than green extractivism.**



2. INTRODUCTION

If you've ever typed the word 'hydrogen' into an internet search engine, you'll be familiar with the resulting imagery: beautiful landscapes with rich blue-green colours and open white spaces. These images, which we associate with life and nature, might make you feel relaxed and hopeful. This strategy of colour psychology – the triggering of moods and emotions by using various hues – is just one of the tactics used by the spin doctors who sell hydrogen as a miracle gas that will solve all our planetary woes.

Add to that the promises of eternal salvation through hydrogen coming from politicians and industry. Thanks to hydrogen, according to European Commission President Ursula von der Leyen, "we can reconcile our economy with the health of our planet".[1] A member of the World Economic Forum, a club of the world's top corporate executives, claimed that "the possibilities for a sustainable future are within reach" with hydrogen.[2] And the boss of South Africa's dirtiest private company, petrochemical giant Sasol,[3] has promised that "Developing a hydrogen economy is an opportunity for a just transition in Africa that ensures nobody is left behind."[4]

Bombarded with so much sweet talk, how could you not imagine the world of hydrogen as a win-win situation for everyone? South Africa would produce it, the EU would import it, and it would decarbonise both their economies while saving the climate and creating millions of new jobs in producer countries. What is there not to like?

The problem is that the hydrogen reality on the ground is much dirtier, and the outcomes of the quest for hydrogen are far from win-win.

Testimonies from the ground

In May 2024, Corporate Europe Observatory visited frontline communities in South Africa that are affected by planned green hydrogen projects. South Africa is one of the countries that the EU has identified as a potential provider for its huge projected import needs. Some EU member states, including Germany and the Netherlands, have already signed agreements with the South African government, and an EU-South Africa deal on hydrogen and raw materials is being prepared. European funders and companies, too, are involved in several of the country's planned hydrogen sites. Yet the voices of the people who will be directly affected by these projects are completely absent from the European hydrogen debate.

This report aims to bring the voices of frontline communities into the discussion. Among them are fishing communities who fear that new hydrogen plants and ports along South Africa's coast will harm marine ecosystems and endanger their livelihoods, and indigenous Nama communities who are being pushed off their land to make way for a mega hydrogen complex (see Section 3.1). These voices also include people living in the Vaal Triangle, who are experiencing depressingly familiar patterns of extraction, exclusion and high socio-ecological costs with the new green hydrogen projects run by the very same companies that have polluted their communities for decades (see Section 3.2). And testimonies were also gathered from mining communities living in Limpopo, close to the world's largest open pit platinum mine, whose rights and health have been abused for years by the same company that is now using hydrogen to greenwash its operations (see Section 4.5).

"The old fossil fuel companies are pushing green hydrogen. I don't see them abandoning their way of making money"

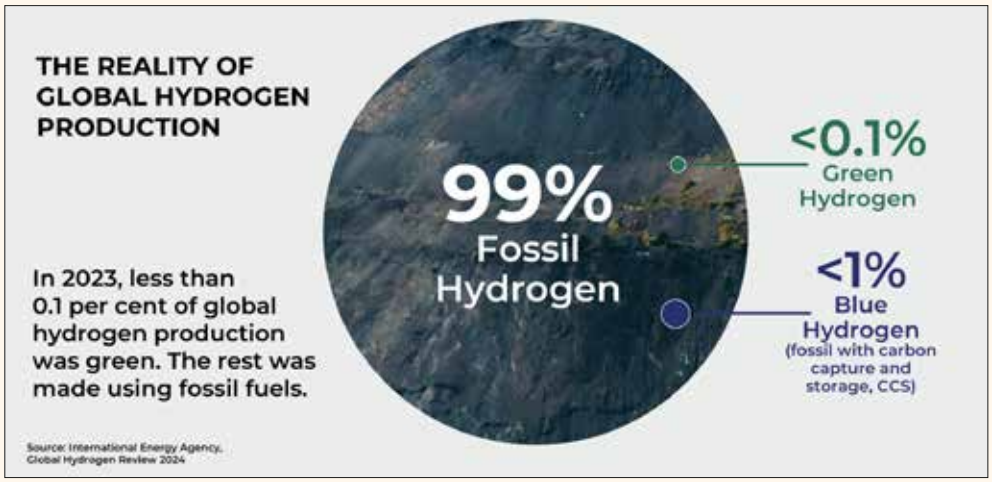
Given Zulu, Khuthala Environmental Care Group

A message repeated again and again across the country is that the key players behind the campaign for green hydrogen expansion in South Africa belong to the world's biggest polluters. "The old fossil fuel companies are pushing green hydrogen," said Given Zulu of the Khuthala Environmental Care Group. He is from the coal-mining town Ermelo in South Africa's Mpumalanga province, where communities are now confronted with green hydrogen projects. "I don't see them abandoning their way of making money. I think it's just a way of making the world shut up a bit … to say, we are no longer polluting."[5]

Kenny Matili of the Vaal Environmental Justice Alliance has a similar perspective on planned hydrogen projects in the Vaal region: "It's a way of them trying to profit over the lives of our people."[6] In the end, it will be these and many other frontline communities that will pay the price for the greenwashing that underpins the hydrogen hype pushed by dirty industry and European governments.

Welcome to the dark side of the scramble for hydrogen in Africa.

In numbers: hydrogen's dirty secrets



- Today, the world is using **97 million tonnes** (Mt) of hydrogen. **99 per cent** of it is made from fossil fuels. **Less than 0.1 per cent** is green hydrogen made from a process called electrolysis, where electricity from renewable energy sources is used to split water into hydrogen and oxygen.[7]
- In 2023, global hydrogen production emitted **920 Mt** of CO_2.[8] That is more than the emissions of the global aviation industry (almost **800 Mt**)[9] and more than twice those of South Africa (**397 Mt**).[10]
- Today, hydrogen is mostly used in the chemical industry (**51 per cent** of global production) and in oil refineries (**44 per cent**), which use it to make petrol and diesel.[11] These fossil fuel-hungry industries are projected to remain the largest hydrogen consumers in the years to come, showing how hydrogen is not about actually reducing the use of coal, oil and gas, but more about perpetuating the fossil fuel era.
- So-called blue hydrogen accounted for **less than 1 per cent** of global hydrogen production in 2023.[12] It is also produced from fossil fuels, mostly gas, but the associated CO_2 is captured and stored (via CCS – carbon capture and storage). This is why blue hydrogen is sometimes advertised as low carbon. But due to the high emissions associated with gas, and the large quantities needed for the process, blue hydrogen's total greenhouse gas footprint is actually **20 per cent worse** for the planet than burning gas directly.[13]
- Green hydrogen is hugely energy inefficient and therefore a bad solution for many of the markets for which it has been proposed. It contains only around **70 per cent** of the energy needed to produce it – the rest is lost in the production process. Additional energy losses occur when hydrogen is converted into ammonia, for example, liquified for transport, or converted back into electricity.[14] Concretely, this is why fuel cell cars running on hydrogen need **twice as much** energy as battery electric vehicles, and **four times as much** if the car is using hydrogen-based eFuels.[15]
- When hydrogen gets into the atmosphere, its climate impact is **8 to 12 times stronger** than that of CO_2. When it reacts with greenhouse gases like methane, hydrogen increases the global warming potential of these gases.[16] In short, any leakage of hydrogen will fuel the climate crisis – no matter how it has been produced.

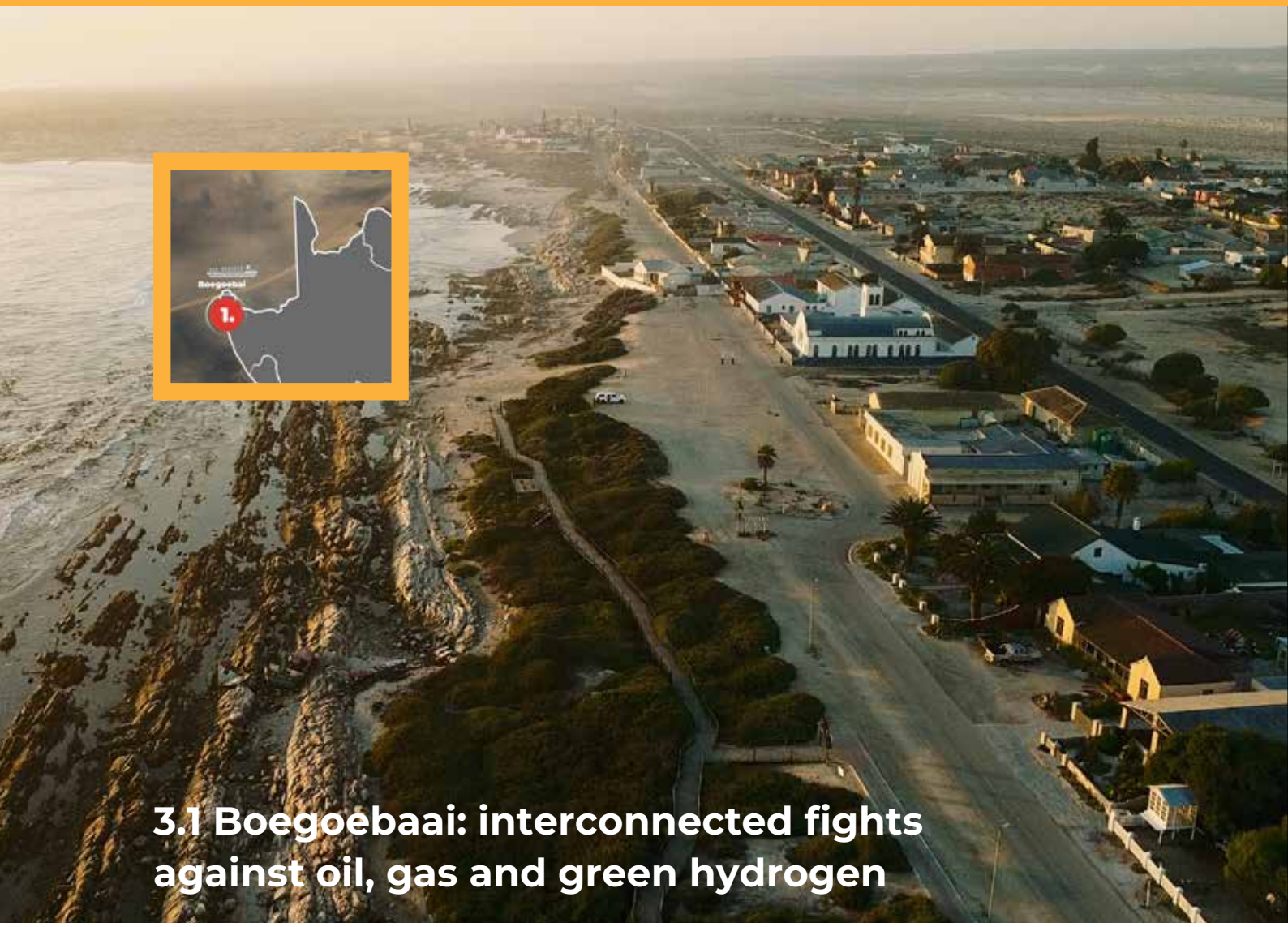
3. STORIES FROM THE GROUND

Green hydrogen has received plenty of hype in South Africa, with promises that it will lead to re-industrialisation and provide solutions to the climate crisis. The government, industry and international donors have pushed dozens of green hydrogen projects by using these arguments. For example, just think about the country's steel production, which could become less polluting if hydrogen was burned instead of coal. Or imagine South Africa as a leading exporter of the gas to other countries wanting to decarbonise.

See Annex 1 for more information and sources.

Plans for the South African hydrogen economy became heavily export-oriented in the government's 2023 Green Hydrogen Commercialisation Strategy,[17] partly the result of pressure from the European Union (particularly Germany) as well as from the hydrogen lobby and international donors (see box on page 32). These projects often follow centuries-old extractivist patterns, where resources like land, water and minerals may be appropriated for industries elsewhere while negative impacts are pushed onto local communities. The Boegoebaai hydrogen cluster in the Northern Cape offers a case in point.

However it is not only export-oriented hydrogen projects that are highly problematic, as illustrated by the case study on the Vaal Triangle. Polluting industries, including petrochemical giant Sasol and steel maker ArcelorMittal, have inflicted severe pollution and human rights abuses on frontline communities for decades, converting these areas into 'sacrifice zones'. Today, they are using the quickly spreading hydrogen fever to pocket huge public subsidies while they continue to fuel their polluting businesses.



3.1 Boegoebaai: interconnected fights against oil, gas and green hydrogen

Petrochemical giant Sasol is planning a sprawling green hydrogen project just south of the Namibian border in South Africa's Northern Cape province. Local communities, who have had little or no consultation and are facing a massive land grab, remain sceptical if not outright oppositional. Their resistance is happening alongside the fight against new offshore oil and gas, which also threatens local livelihoods. This is the latest extractivist struggle in a region that has faced these dangers since Apartheid.

The Boegoebaai green hydrogen cluster has consistently been at the forefront of the government's national green hydrogen plans and is viewed as a "path finder" for its other initiatives.[18] It is led by petrochemical giant Sasol, which wants to build 10 GW of wind and solar and 5 GW of electrolysers by 2030 to produce and export green hydrogen-derived ammonia to Europe. The project also includes a deepwater port, ammonia storage and a rail line. It will require billions in investment.

When Corporate Europe Observatory visited the area in May 2024, resistance to the project was already growing. The environmental justice organisation Green Connection, alongside the Port Nolloth fishing cooperative and local youth group Environmental Traits, have been important in getting the community informed and organised. By visiting villages in the area, knocking on doors and bringing people for workshops and meetings to Port Noloth, the municipalities' principal town, the community is now in a position to fight for its interests.

Meet Boegoebaai: South Africa's biggest planned green hydrogen project

Who? South African petrochemical company Sasol, in a public-private partnership with the Northern Cape Economic Development, Trade and Investment Promotion Agency (NCEDA) and Transnet, the National Ports Authority. Other companies are planning to get involved, including the Port of Rotterdam in the Netherlands, which wants to build the port in Boegoebaai and ship the hydrogen to Europe.[19]

What? An export hub for locally produced green ammonia, with seven planned key facilities for the greenfield site: an electrolyser park, a desalination plant, a green ammonia production plant, a storage facility for hydrogen and ammonia, a solar, wind and battery park, a supplier park for common components, and a gigafactory to produce electrolysers. There are also plans for a deepwater port and a connected rail line.[20] The project aims to produce 400,000 tons of green hydrogen per year.[21]

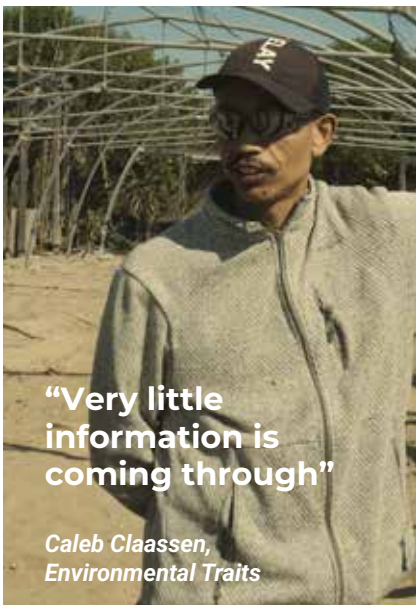
Where? The Northern Cape municipalities of Richtersveld, Nama Khoi, Kamiesberg and Khâi-Ma.

When? There have been no investment decisions to date around Boegoebaai, and none of the plans have been approved. Despite fast-tracking and a high level of political support, the project has not yet moved past the feasibility stage. Since March 2024, the project has been undergoing a strategic environmental assessment by the Council for Scientific and Industrial Research (CSIR), which will take an estimated 18-24 months.[22]

Communities left in the dark

The municipality of Richtersveld, where Boegoebaai is planned, is home to the aboriginal Nama 'first peoples'. While the national and regional governments appear to be on board and are fast-tracking the project, local communities remain in the dark. Despite claims from the Northern Cape provincial authorities that "consultations were held with… the communities that will be impacted by the development,"[23] local people interviewed on the ground consistently said they had not been consulted. "There was no free prior [informed] consent," said local fisherman and community leader Walter Steenkamp. "It was a top-down decision from our Northern Cape department."[24]

Caleb Claassen, who is active in the local youth group Environmental Traits, has visited surrounding communities to find out how much people know about the proposed developments. Not much, it turns out: "Very little information is coming through… They don't come here to us."[25]



On paper, the land designated for the Boegoebaai project is owned by the community of Richtersveld.

Previously, the Nama people had been prevented from accessing it for over 70 years by state-owned diamond mining company Alexkor. But when Apartheid ended, the Nama fought to recover their ancestral land rights and finally won their court battle in 2003. According to community leaders, however, the structures subsequently set up to manage the land and its resources for the community's benefit have since been captured by government and mining interests. As a result, the Nama were unable to prevent the granting of land access for the Boegoebaai project.[26]

In December 2023, 200 community members wrote to the NCEDA questioning the legality and legitimacy of the decision.[27] Elizabeth Slander, a Nama community leader from the town of Sandrift in Richtersveld, worries that history may repeat itself: "We are scared we are going to lose our land... That is my biggest concern, that claimed land is going back to the government."[28]

The community is already being denied access to the site, and further exclusion is feared once the area is designated a special economic zone (SEZ). Including the adjacent port, the land being claimed for the proposed SEZ comprises 33,500 hectares, but this is a fraction of the total area needed and the NCEDA is promising to make an additional 240,000 hectares available for wind and solar installations to power Boegoebaai's hydrogen factory.[29] For reference, this would be the equivalent of covering the entire area of Cape Town in wind turbines and solar panels.

Andries Joseph, a community elder who was born in Richtersveld and has spent decades working in the region's diamond mines, finds these plans for Boegoebaai hard to swallow. "My ancestors were the first peoples who travelled around here, we are indigenous. … That's my area, but I have to go to security to ask [for access]. I can't go inside on my own."[30]

If the Boegoebaai green hydrogen development goes ahead, the indigenous Nama people fear they will lose access to their traditional fishing grounds and other important aspects of their culture and way of life. In a further affront to the Nama people, the proposed port site is located on an ancient burial ground. Joseph explains: "There are graves from ancestors. This sacred ground belongs to the indigenous people."[31]

Interconnected fights: fossil fuels and green hydrogen

The new deepwater port will serve to prolong and intensify the resource extractivism that has been going on for more than a century in this region. Export plans for the port include not only ammonia produced from green hydrogen, but also agricultural products and minerals such as manganese and iron ore. These ambitions will be facilitated by plans to build a new 500-kilometre railway linking the port to inland areas.

The port has also been identified as a "strategic location for oil and gas support",[32] and the 2024 Northern Cape investment prospectus talks about "possibilities for linking the port to the gas fields".[33] Momentum is already building to implement this idea: French oil and gas major TotalEnergies holds the rights to explore for oil and gas in the Deep Water Orange Basin, offshore of Port Nolloth. If they find what they're looking for, the company wants to drill up to ten new wells, which would have a devastating effect on numerous fish and marine species, as well as on the fishing, tourism and aquaculture industries.[34]

"As a fisherman, it's a real threat," says Walter Steenkamp, a fourth-generation fisherman born in Port Nolloth and the chairperson of the local small-scale fishing cooperative. "We don't want companies like Shell and Total in our ocean because it's going to destroy our livelihoods."[35] Freddy Joseph, another Port Nolloth fisherman and part of the cooperative, adds: "We can't allow it. We live from the sea and this whole coastline."[36] For Steenkamp, it's also a question of the community's ability to secure their livelihoods in the area in the future. "If we allow this now, there will be no more fish in our ocean left for our children. That's why we are against oil and gas and any extractivism happening in our region."[37]

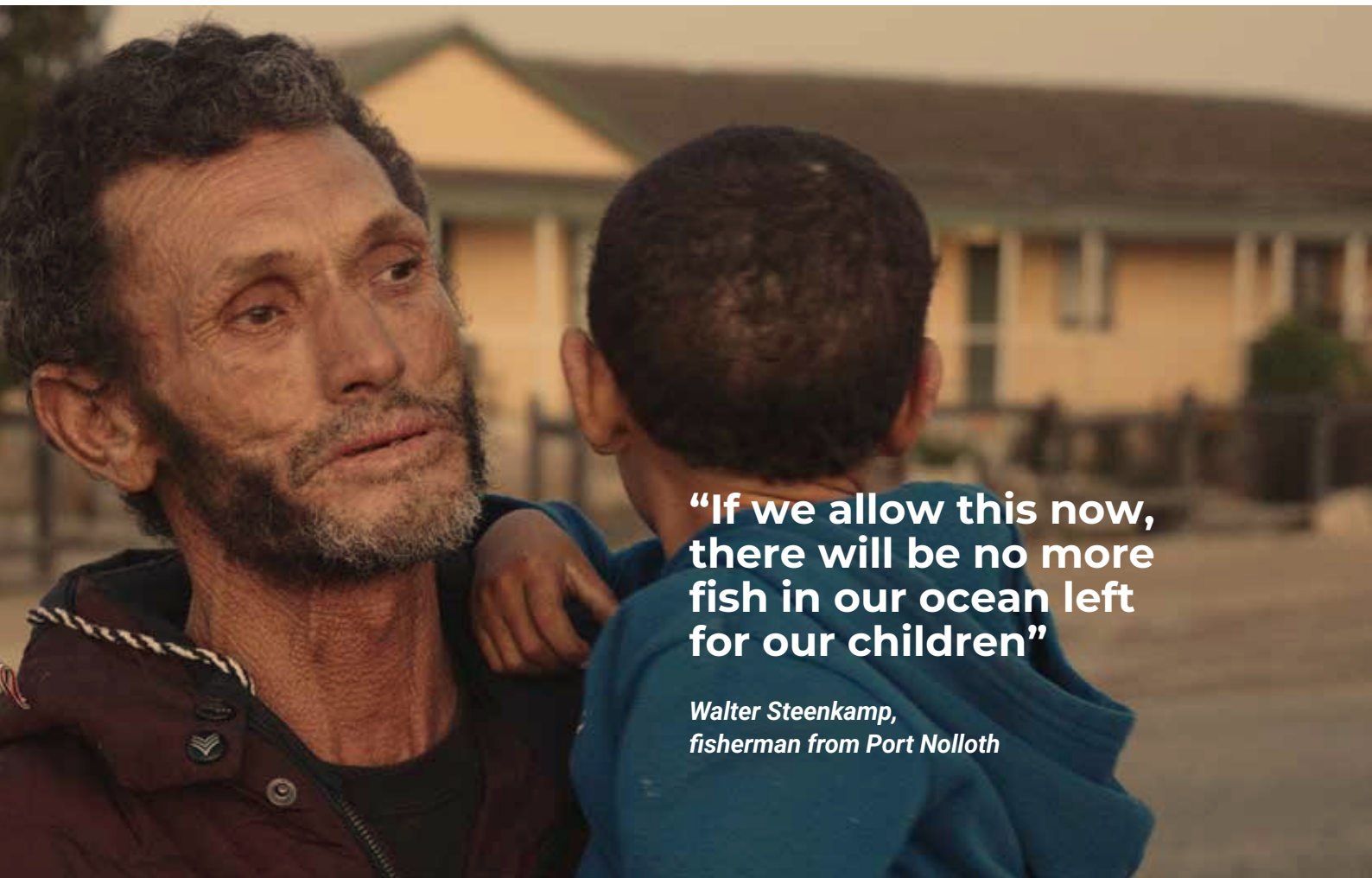
The fisherfolk of Port Nolloth have not stopped at protesting. They teamed up with two national environmental justice organisations, The Green Connection and Natural Justice, to bring a High Court challenge to TotalEnergies' authorisation, claiming that their concerns were ignored when the exploration licence was first granted.[38] Environmental Traits, a local youth organisation, is also exploring new ways to fight back against energy extractivism; they are linking up with other campaigners and fisherfolk fighting the fossil fuel industry both nationally and internationally in order to learn from these all-too-familiar experiences fighting offshore drilling.[39]

And what about jobs?

The Boegoebaai project also promises "job creation, skills development, youth employment, and investment" in its ambitious plans to attract wind and solar manufacturers to the Northern Cape.[40] Sasol has promised to generate up to 6,000 permanent jobs and more than 50,000 temporary ones.[41] To date however there is no evidence of this happening.

Local residents are sceptical of these corporate promises. "They say it's a big opportunity to bring green hydrogen into Boegoebaai, to bring massive job opportunities for our communities. That we are going to receive houses, and schools are going to be built for us," says Elizabeth Slander. "They say our children will have a better future with the education they want to offer. But we know it's not going to happen in our towns. We already experienced it with the mining companies. So green hydrogen is not going to work for us."[42]

Fisherman Steenkamp is also not convinced. Based on his previous experience, "a lot of money comes from outside but it doesn't reach the community".[43] Petrus Basson, a land and ocean defender from Pella in the Namaqua region, concurs that the jobs will only be temporary ones, generated during the construction phase, as people living in and around Port Nolloth lack the relevant skills and qualifications to do the permanent work. "And afterwards, we as locals are just going to sit there again without a job."[44]



“It’s holy ground for us indigenous people. It’s not for development”

Andries Joseph, Nama community elder from Richtersveld

“Over my dead body”

The demand for free, prior and informed consent has been and continues to be one of the key tools in defending community land rights,[45] as corporations, investors and government repeatedly sideline those who live on or own the land where large extractivist projects are envisaged.

When it comes to Boegoebaai, some community members are demanding information, consultation and clarity on potential risks and benefits so they can make an informed decision. Fisherman Steenkamp is clear in his stance: “I love the ocean with my whole heart. I will protect it as long as I live.” But he is also adamant that local people have the right to decide for themselves. And no matter what they choose, as a community leader he will do his best by them. “I will protect the ocean and make sure that my community gets the right benefits if there are any benefits at the end of the day.”[46]

Other Nama people are outright oppositional in their rejection of green hydrogen, seeing it as the latest extractivist project to exploit their resources in return for empty promises. “We as communities are not going to allow this project to happen on our claimed land,” clarifies Elizabeth Slander. “What we heard about green hydrogen and oil and gas is that they are dangerous for us. So we cannot allow it.”[47]

The fight to enforce the community’s ancestral rights to the land, which could put a stop to the development, continues through the land claims courts. Andries Joseph, one of the community elders leading the challenge, refuses to entertain the idea of the new port. “Over my dead body. So long as I live, no development shall happen on that site. It’s holy ground for us indigenous people. It’s not for development.”[48]

3.2 The Vaal Triangle: greenwashing a polluting monster from Apartheid times

The Vaal Triangle is one of the world's most polluted areas. Industrial plants have contaminated the air, land and water here for decades, causing hundreds of premature deaths each year. The responsible companies have now jumped on the hydrogen bandwagon, claiming that a switch to the gas will help them clean up their dirty businesses by decarbonising and that plenty of local jobs will be created in the process. Will these hydrogen dreams actually benefit communities, or are they just dangerous hype?

Fighting for environmental justice

In March of 2024, media outlet Bloomberg described the Vaal Triangle as "the most polluted place on Earth".[49] On the outskirts of Johannesburg, this area is home to several highly polluting industrial plants, most of them operated by steel company ArcelorMittal South Africa (AMSA),[50] public utility Eskom and petrochemical giant Sasol. The Triangle is formed by three of these companies' polluting sites, all of which were built in the Apartheid era to generate coal, electricity, steel and fuel (see figure below).

The operations of this corporate trio have left a trail of environmental and social devastation across South Africa. Despite claiming good practices on climate action and human rights, AMSA is responsible for huge negative impacts on the communities and climate where its production is based.[51] South African power company Eskom is also among the world's biggest polluters, and responsible for massive power cuts affecting mostly poor communities.[52] Sasol has profited greatly from racial capitalism over the past decade: during Apartheid, Black migrant workers were placed in surrounding townships in a pattern that "made black lives cheap in order to keep coal cheap".[53] This show of environmental racism continues to this day, and the company's record of abusing human and workers' rights, as well as health and safety conditions, is unbroken.[54]

When Corporate Europe Observatory visited the area in May 2024, we were guided by activists from Vaal Environmental Justice Alliance (VEJA). VEJA unites different local groups fighting for environmental justice in the region – from food, work, health and waste issues to energy, education, land and water.[55] In the Vaal, the struggle is one for survival, and VEJA has been at the forefront of this fight for almost 20 years.

You cannot breathe in a sacrifice zone

World Health Organization data from 2016 showed that "communities in the Vaal Triangle were breathing in toxic air from Eskom's Lethabo power station, ArcelorMittal's steelworks and Sasol".[56] The municipality where AMSA's Vanderbijlpark steel plant is located regularly has the world's highest concentration of so-called PM2.5 small particles, which can travel into lungs and cause cancer.[57] The plant also belches out a daily dose of hydrogen sulphide that is well over what national air quality standards permit. This toxin can cause headaches, eye and lung irritation, neurological, metabolic and reproductive defects, unconsciousness and even death.[58] According to VEJA's Mpho Selemela, "People are sick because of the air pollution, with asthma and skin rashes."[59]

Impacted communities and environmental justice groups have fought for years to document the direct link between pollutants from the AMSA and Sasol plants and their health. In the mid-2000s, the government designated the region as a priority area and made a commitment to tackle the pollution. Twenty years later however, air quality levels are not any better.[60] One reason for this lack of progress is that AMSA, Sasol and Eskom have repeatedly applied for – and been granted – exemptions to emission limits using the argument of concerns about growing unemployment.[61] Today's hydrogen plans are being used as promises for the decarbonisation of these companies, and they carry the risk that exemptions to emissions limits will once again be prolonged. This will continue to have enormous costs for the communities already severely impacted by their dirty operations.

Today, the Vaal is considered as a 'sacrifice zone': a region that has suffered from devastating pollution, serious health risks and the chronic neglect of health and safety protections for decades, with no end in sight.[62]

Greening South Africa's mega polluters

Who? Sasol (South Africa) and ArcelorMittal South Africa (AMSA)

What? Sasol's Sasolburg Green Hydrogen Programme plans to use green hydrogen and CO_2 to replace fossil gas as a feedstock in the production of its chemicals and fuels. The aim is to produce six tonnes of green hydrogen per day with renewable energy from dedicated solar and wind plants, developed by independent power producers.[63] This will be combined with CO_2 captured from AMSA's Vanderbijlpark Works steel plant. AMSA hopes to provide 1.5 million tonnes a year to Sasol's Ekandustria and Sasolburg plants as part of the Vaal Carbon Capture and Utilisation project.[64]

Where? Vanderbijlpark is located in the municipality of Emfuleni in the Gauteng province, and Sasolburg is in the municipality of Metsimaholo in the Free State province.

When? Since 2023, Sasol has been producing a small amount of green hydrogen in its Sasolburg plant.[65] In October 2024, the company received renewable energy at its Sasolburg plant from the Msenge wind farm under its power procurement plan for green hydrogen production.[66] The capture of CO_2 from the AMSA steel plant is still in the research phase.

Water and land injustice: will hydrogen make things worse?

Water pollution is a serious concern for communities in the Vaal. Standing at the Rietspruit canal, a tributary of a stream that feeds the Vaal River, VEJA's Mpho Selemela elaborates on the impacts of dirty wastewater from the AMSA plant on the community's water resources. "The water of the plant is so polluted… For fifty years this has been happening. It goes straight to the farms… Now plants can't grow, crops can't grow, animals are getting sicknesses."[67] Local farmers corroborate these negative effects. Tamila Massike, a farmer and ecologist, adds: "I'm planting food, but now I'm struggling to grow vegetables because the soil is already polluted."[68]

Green hydrogen plants need considerable amounts of water to operate their electrolysers, and communities near Sasol's synthetic fuels plant are concerned about the water needs of the company's planned new hydrogen project. "Where are they going to take that water from?" wonders Kenny Matili of VEJA. "Are they going to take it from our river and pollute it even more?"[69] A recent study with evidence from 28 prospective hydrogen exporting countries in the Global South warns that the hydrogen economy could lead to a new form of 'water extractivism', further constraining access to clean drinking water for both the urban and rural poor.[70]

The Vaal area, as well as other hotspots for green hydrogen projects in South Africa, has already been established as a special economic zone (SEZ) to support the green hydrogen economy. In the race to attract investors, the availability of abundant land is one of the offers.[71] Unsurprisingly, displacement, as well as low compensation for people forced to relocate, is another concern for the communities. It is also a reminder of what many experienced in the Steel Valley in the late 1990s and early 2000s, when the vast majority of residents were bought out at low prices by the same company that polluted their lands (ISCOR, which soon afterwards became AMSA).[72]

Not for us, but for businesspeople

Neither the government nor industry has provided much information about the hydrogen projects that are being planned in the Vaal. "No one from their side or from the government has ever told us about green hydrogen," complains Mpho Selemela. "Most of the communities don't know."[73] As this is how ArcelorMittal and other big polluters have treated communities for decades,[74] he is not surprised. "The transition that is coming is not for us. It's for businesspeople, maybe for their exports and their trade. But for us – we're damaged."[75]

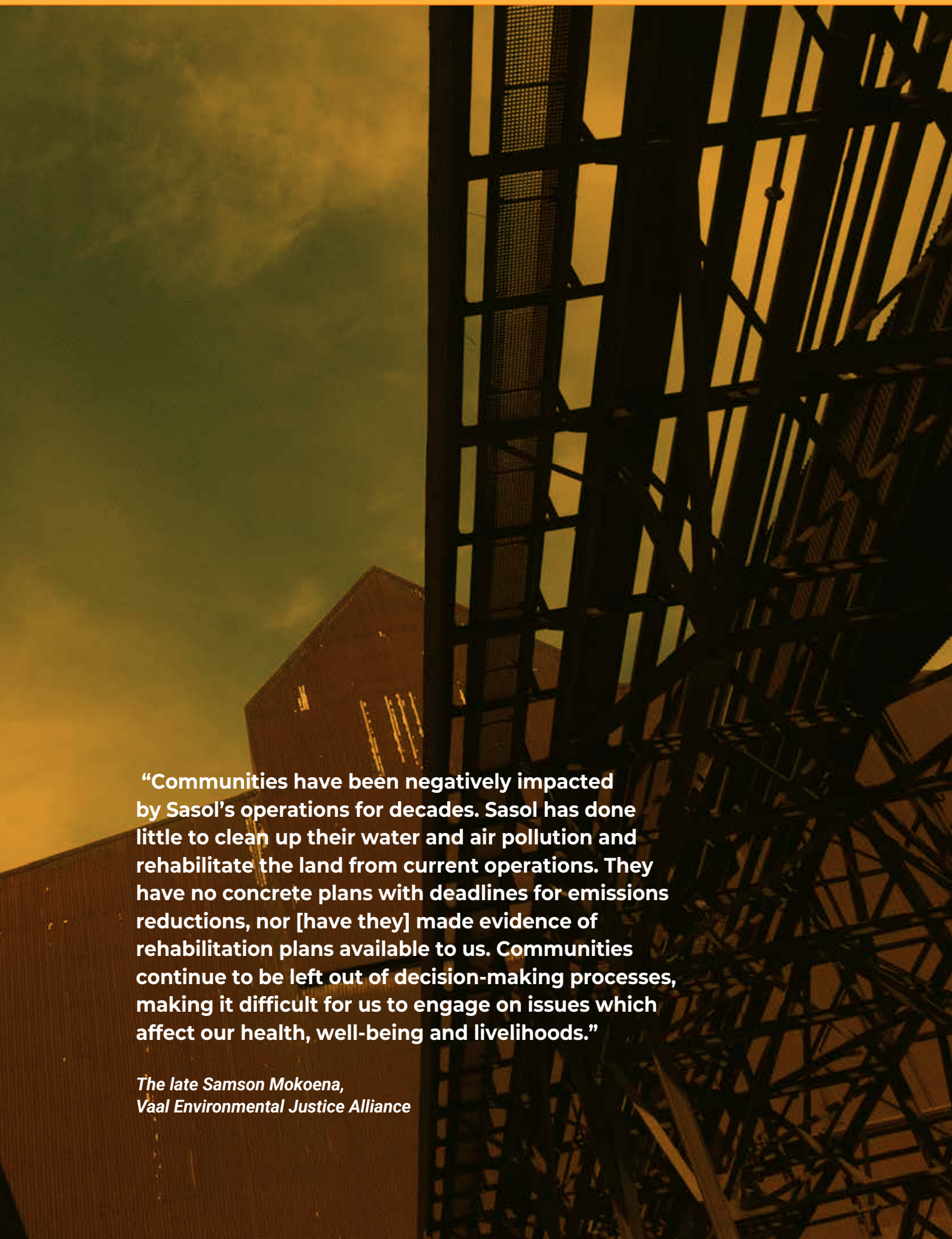
But what about the promised employment? The South African government estimates that the green hydrogen economy will create over 380,000 jobs by 2030.[76] The promise of jobs that accompanies the push for hydrogen is hard for communities to ignore, despite the severe impacts that Sasol and AMSA's activities have already had on health and livelihoods. Still, there is a great deal of scepticism among community members. "I don't believe that there will be jobs created in this transition into green hydrogen," says VEJA's Kenny Matili.[77] There are fears that new industries will bring in workers from other areas, as the population in Vaal suffers from high rates of chronic sickness that may prevent them from being hired. Babies are often born ill due to the health impacts of the pollution on their mothers. "Are you going to employ me when you know I'm sick?" Matili is dubious. "So, you make sure you take people from far communities not affected by this environment degradation – because us, we're sick."[78]

Left behind

South Africa’s constitution from 1996 is powerfully linked to the hopes held by South Africans following Apartheid. “The South African Constitution protects us,” explains Mpho Selemela passionately. “Section 24 says we must live in a healthy environment. It’s a global right.”[79] Yet he and others have seen their hopes dashed time after time with Sasol’s continuing deception and pollution. Despite the rights and obligations laid out in the country’s constitution, the company has continued to cut workers’ rights, undermine unions and evade responsibility.

“Sasol’s plans for decarbonisation continue to be insufficient,” said the late VEJA leader Samson Mokoena. “Communities have been negatively impacted by Sasol’s operations for decades. Sasol has done little to clean up their water and air pollution and rehabilitate the land from current operations. They have no concrete plans with deadlines for emissions reductions, nor [have they] made evidence of rehabilitation plans available to us. Communities continue to be left out of decision-making processes, making it difficult for us to engage on issues which affect our health, well-being and livelihoods.”[80]

Over the past decades, Sasol has rebranded itself as a proud South African company, but “the big change since the end of Apartheid is that it is now rampaging and polluting on a global level,” in the words of Earthlife Africa. “Sasol talks green, but its actions have proven otherwise.”[81] Thirty years after adopting the constitution, the same companies that have abused, sickened and exploited community members, their parents and their grandparents, still reign over sacrifice zones like the Vaal Triangle.



"Communities have been negatively impacted by Sasol's operations for decades. Sasol has done little to clean up their water and air pollution and rehabilitate the land from current operations. They have no concrete plans with deadlines for emissions reductions, nor [have they] made evidence of rehabilitation plans available to us. Communities continue to be left out of decision-making processes, making it difficult for us to engage on issues which affect our health, well-being and livelihoods."

The late Samson Mokoena,
Vaal Environmental Justice Alliance

4. SOUTH AFRICA'S LOOMING GREEN HYDROGEN CURSE

The South African government estimates that by 2050, the hydrogen economy could add around 370,000 jobs and boost the country's gross domestic product by 3.6 per cent.[82] One media outlet fantasised that "South Africa could be sitting on its next gold rush"[83] thanks to green hydrogen.

This potential gold rush has not come out of nowhere, however, as South Africa is one of the countries that the EU has identified as a potential provider to meet its huge green hydrogen import targets.[84] The European Commission, the hydrogen lobby, and countries such as Germany and the Netherlands are among the actors behind the hydrogen fever currently gripping South Africa.

Most projects are in an early planning stage and might not be operational for years (or may never materialise). Yet concerns about the social, environmental and financial risks of South Africa's alleged green gold are growing. This section will go into more detail about the threats for communities and the structural risks for South Africa inherent in the green hydrogen fever, and why it looks more like a curse than a blessing.

4.1 Displacement and land conflicts

"Land is very unevenly distributed due to the legacy of Apartheid, and it is now the traditional communities that still own some land that may lose it to hydrogen plants."[85]

Ulrich Steenkamp, Earthlife Africa

Wind and solar farms to feed hydrogen factories with renewable energy, as well as ports and pipelines for hydrogen transport, all require vast areas of land. This can lead to the displacement of communities and intensify land conflicts. This is already happening in various parts of South Africa, for example to the communities around Boegoebaai, where the indigenous Nama people fear losing 70,000 hectares of their land to Sasol's planned hydrogen cluster (see Section 3.1).[86]

The villages surrounding the controversial Mogalakwena platinum mine in Limpopo province face a similar threat, and people here are also being pushed from their land to make space for another green hydrogen project. As Surprise Mashishi, who works with Macua (Mining Affected Communities United in Action), told Corporate Europe Observatory in May 2024: "They have been building the solar panels and the people have been removed from their areas to other villages."[87]

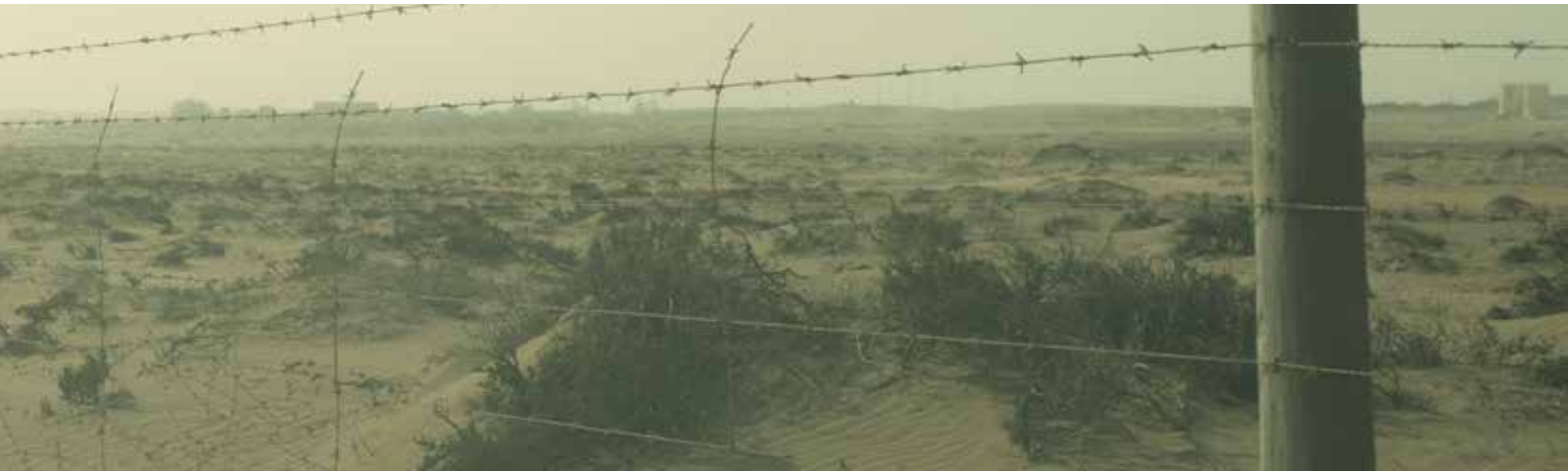
The mine's operator, the UK-based mining giant Anglo American, has teamed up with French energy multinationals Engie (building the electrolyser and other equipment) and EDF (building the solar plant) to produce hydrogen to fuel mining trucks in Mogalakwena (see page 34 for further info).[88] The project is part of the so-called Hydrogen Valley proposed by Anglo American, Engie and others. It would connect various hydrogen producers and users from the Limpopo mining region with the industrial cluster around Johannesburg and the export-oriented coastal areas around Durban and Richards Bay.

Deceptive narratives of empty lands

According to the Johannesburg-based Public Affairs Research Institute (PARI), "indigenous land territories are the main targets of renewable energy infrastructure development" in South Africa. PARI warns that "indigenous people bear the disproportionate burden of the negative impacts of large-scale renewable energy projects," including displacement.[89]

Against this backdrop, the additional 240,000 hectares of land that the Northern Cape provincial government foresees for wind and solar fields to power the Boegoebaai project in the long run is a worrying figure.[90] Walter Steenkamp, chairperson of a small-scale fishing cooperative in nearby Port Nolloth, fears that many communities will fall victim to the project: "Our government is selling us out... saying that there are no people living on this ground... But I've been living here for 50 years and there are a lot of communities on this land."[91]

This observation stands in stark contrast to the deceptive narrative that is being used around large hydrogen projects in South Africa and other countries in the Global South around supposedly empty lands. It seems that an inaccurate fiction is being created to – once again – legitimise the large-scale appropriation of land and other resources for the needs of the Global North.



4.2 Water conflicts and risks to fishing communities

"In a continent where water is often a lifeline for survival, prioritising green hydrogen production over local water needs is not only environmentally irresponsible but morally indefensible. The idea that Africa's scarce water resources should be sacrificed to produce energy for export to Europe is a stark reminder of the exploitative practices that have long plagued the continent."[92]

Karabo Mokgonyana, Power Shift Africa

Green hydrogen plants need a fair amount of water. Approximately 10 litres of ultrapure water (requiring 29 litres of seawater or 15 litres of tap water) is required as feedstock to produce one kilogramme of the gas in an electrolyser plant.[93] Depending on the cooling needs, a total of 30-70 litres are required per kilo.[94]

Hydrogen factories would signify an additional new water demand. Concretely, South Africa would need around 13,680 Olympic swimming pools of water every year to reach the government's hydrogen production goals for 2050.[95] This could aggravate the current situation, where South Africa is already confronted with water scarcity and stress and communities lack access to clean water for drinking needs and farming.

This is already the case in the Vaal area. After decades of industrial pollution from the likes of steel giant ArcelorMittal and others, the contamination of rivers and groundwater is a serious problem. Now the same polluting companies are planning water-hungry green hydrogen projects, with the risk of worsening the situation for the community (see Section 3.2).

On top of that, there are also the risks that green hydrogen poses to South Africa's coastal communities. New mega ports and the high traffic of diesel and gas-fuelled tankers for the export of hydrogen pose the dangers of degraded fishing grounds and curtailed access to the sea for fisherfolk. Seawater desalination, which is needed to obtain water for the production of green hydrogen in arid regions, can also be severely damaging to marine environments; when the wastewater from the process ('brine') is dumped into the sea, it can kill fish and other marine animals.

Walter Steenkamp, who has been fishing in the region for nearly forty years, sees the planned Boegoebaai Port as a real threat to local fishermen such as himself. "They are going to use big boats and vessels to ship our green hydrogen from here. That will have a huge impact on us as fishermen, on our fishing grounds. Our fish will go another way and we as fishing communities will suffer."[96]

Meet the corporations behind the global hydrogen fever

"Pushed by the same fossil industry that has caused – and continues to fuel – the climate crisis, hydrogen is yet another false solution, sold by the industry as a magical fix which allows business as usual to continue."[97]

Friends of the Earth International

Governments around the world have fallen in love with hydrogen. Over 60 states have published hydrogen strategies, including the US, China, South Africa and the EU as a bloc.[98] Developed economies in particular are handing out billions in public money to spur the sector. Bloomberg estimates that global hydrogen subsidies will top US$360 billion in 2024.[99] That is ten times the budget of the United Nations (US$3.59 billion).[100]

This frenzy has not come out of nowhere.

Behind the global hydrogen hype is a broad network of companies and lobby groups. Many of them come from or have ties to fossil fuels and other polluting industries. Hyping hydrogen allows them to siphon funds and attention away from the structural changes needed to tackle the climate crisis: for example, transitioning to agroecological farming (rather than just greening synthetic fertilisers with hydrogen), reducing private transportation (instead of wasting energy on hydrogen-powered cars), or keeping fossil fuels in the ground (rather than, for example, greening the production process of petrol and diesel, which will then still be burnt).

While there is a great deal of vertical integration in the hydrogen market, with some companies active in several parts of the supply chain, several clusters in the hydrogen lobby are worth paying attention to:

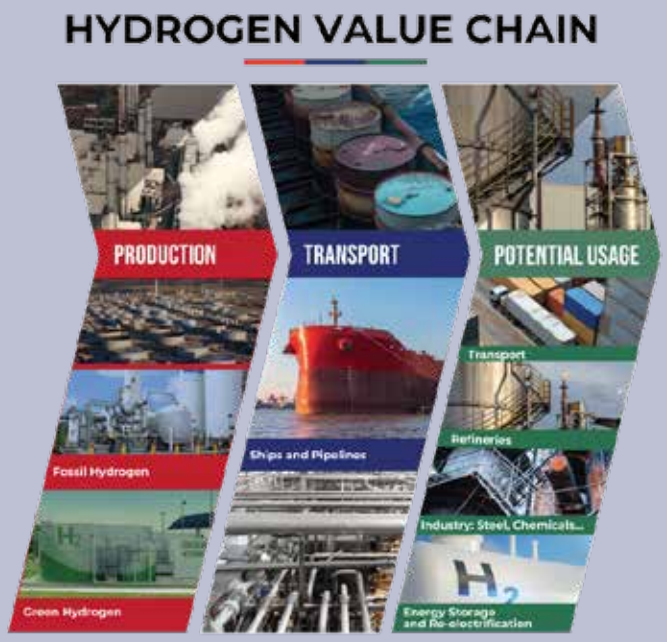
- **Fossil hydrogen producers**: Currently, 99 per cent of global hydrogen is produced from fossil fuels (see box on page 9). Despite knowing that hydrogen production will remain mostly fossil-based in the years to come, today's producers and their fossil suppliers have hyped hydrogen as a silver bullet solution for the climate crisis in order to ramp up business. Examples include fossil fuel majors like Shell and TotalEnergies (planning to drill for oil and gas offshore of South Africa),[101] industrial gases company Linde (a huge producer of fossil hydrogen, now with some green hydrogen pilot projects),[102] and South Africa's petrochemical giant Sasol (another big producer of dirty hydrogen with a few planned green hydrogen projects).
- **Gas transporters**: Those who install and run fossil gas infrastructure want to extend its lifespan by using it for hydrogen. And they want to build even more pipelines and import terminals, claiming that they will (eventually) be used for the gas. This component of the hydrogen lobby includes port operators (such as the Port of Rotterdam, which wants to become the key hub for hydrogen imports from South Africa's planned Boegoebaai Port)[103] and companies behind import terminals for liquified natural gas (LNG) such as Vopak from the Netherlands (co-developer of an LNG terminal at the Port of Richards Bay, together with South Africa's government-owned port, railway and pipeline operator Transnet).[104] Transnet is a partner in most export-oriented hydrogen projects in South Africa, and recently received a EU grant of €7 million for green hydrogen infrastructure.[105]

- **Hydrogen users**: This includes the chemical sector and oil refineries (the two biggest consumers of fossil hydrogen today),[106] which place their bets on green and other allegedly 'low carbon' forms of hydrogen to 'decarbonise' their polluting businesses. Steel giants such as Luxembourg-headquartered ArcelorMittal (which is thinking about producing and exporting direct reduced iron (DRI) for green steel from Saldanha on South Africa's Western Cape),[107] and car makers like BMW (involved in several hydrogen projects in South Africa)[108] also position hydrogen as a feedstock and fuel that will reduce emissions.
- **Mining companies**: Hydrogen technologies like electrolysers and fuel cells need raw materials – for example, platinum. In a situation where mining majors like UK-based Anglo American face a massive slump in demand from other sectors, they see green hydrogen "as a strategic opportunity... to grow demand for our metals".[109] Anglo American owns several controversial mines in South Africa and is involved in multiple green hydrogen projects, including Hydrogen Valley (see page 46 for more information).

Alongside individual companies, powerful lobby groups around the world are also drumming up support for hydrogen. One example is the **Hydrogen Council**, an influential global CEO-led lobby group, which boasts 140 corporate sponsors ranging from TotalEnergies to BMW. The group claims credit for having created so much "momentum" around hydrogen that it has become central to decarbonisation strategies around the world.[110] Recently, the Hydrogen Council seems to have stepped up efforts to promote Africa as a hydrogen export hub for Europe and Asia.[111]

In the EU, **Hydrogen Europe** is the most influential hydrogen lobby group.112 It comprises over 600 member companies, regions and associations from across the supply chain and enjoys an incestuous relationship with the European Commission. The latter has taken Hydrogen Europe's overblown hydrogen targets on board,[113] as well as the demand for billions and billions in public funding for the sector.[114] The lobby group also plays a "catalytic role" in facilitating EU hydrogen deals with non-EU countries.[115]

The members and activities of corporate actors and lobby groups are not confined to Europe. The **African Hydrogen Partnership,** in which various European companies, lobby groups and elites are very active, was set up by a German and a Dutchman[116] and its members include the Port of Rotterdam, Hydrogen Europe and Anglo American. It is no wonder that the group's message is: "Green African Hydrogen will be greatly beneficial for both Africa and Europe."[117]



4.3 Energy poverty

"In a country where, during this year, 25% of the hours there was no electricity for the people of South Africa, I think it is a little bit ridiculous to use the electricity from wind and solar to produce hydrogen derivatives for the European market."[118]

Rainer Baake, Germany's special envoy for the Just Energy Transition partnership with Southern Africa

For nearly twenty years, South Africa has been struggling with a severe energy crisis: daily electricity blackouts, high costs, and resulting energy poverty. "There are power cuts for several hours each day [and] many people cannot afford electricity due to skyrocketing tariffs," explains Ulrich Steenkamp, an environmental justice activist from Johannesburg who works with Earthlife Africa.[119] He and many others feel that South Africa's first priority should be to ensure affordable and stable electricity for all. The country's hydrogen fever could however jeopardise both.

According to South Africa's Green Hydrogen Commercialisation Strategy,[120] the hydrogen production envisioned by the country would require 39 gigawatts (GW) of wind and solar power generation capacity by 2035, and 80 GW by 2050. This is respectively four and eight times as much as the renewable energy capacity installed today (just under 10 GW).[121] This is a daunting increase – and only for hydrogen. Remarkably, the government expects to export half of this hydrogen.

In a country struggling with energy poverty, wasting precious renewable energy on energy-inefficient hydrogen, with much of it destined for export, seems like a questionable move. "Why would you sell sunshine in the form of low-cost hydrogen to Germany?" wonders South African energy expert Clyde Mallinson. "Why not invest in low-cost renewable energy for the locals?"[122]

4.4 Expanding fossil fuels, delaying decarbonisation

"Major oil and gas companies will use green hydrogen to look environmentally friendly, while still continuing with fossil fuel-based hydrogen."[123]

Natural Justice, Cape Town-based environmental lawyers group

There is also the danger that South Africa's energy transition will be slowed down if the promised transition to green hydrogen is used to delay the move away from fossil fuels. This is exactly why fossil fuel companies love green hydrogen so much: it is a back door that allows them to continue and even expand their polluting business. The consequence of this delaying tactic has devastating environmental and health impacts for communities that have already been harmed by Big Coal, Oil and Gas.

Take petrochemical company Sasol, for example, South Africa's second-biggest emitter of greenhouse gases. A huge producer and user of hydrogen from coal, Sasol openly admits that it has "a vested interest" in the issue.[124] In South Africa and elsewhere, Sasol is part of green hydrogen projects and started to produce small amounts in its Sasolburg plant in 2023[125] (see Section 3.2). Yet the company has admitted to US regulators that the costs of green hydrogen are too high (quote: "prohibitive") and that "our effort to become a green hydrogen producer may be unsuccessful".[126] According to shareholder activist group Just Share, Sasol told investors in October 2023 that green hydrogen was not actually part of its current decarbonisation plan.[127] Instead, the company bets on fossil gas and fossil hydrogen, which will only be replaced with green hydrogen when there is an "economic basis".[128] In the meantime, the oil and gas exploration arm of the company, Sasol Exploration and Production International (SEPI), wants to drill for even more fossil gas,[129] further delaying decarbonisation.

Similarly, AMSA's Saldanha steel plant is also exploring the use of green hydrogen to make direct reduction iron (DRI) for export to Europe where it will be used to manufacture green steel. The company has already admitted that it will use fossil gas if green hydrogen is not economically feasible.[130]

A Trojan Horse to prolong fossil fuels

Many environmental activists in South Africa see green hydrogen as a "dangerous distraction", as Yegeshni Moodley, a climate and energy campaigner at the environmental justice organisation groundWork, puts it. "We see it as a lot of hype that's been generated by the fossil fuel companies. They are using it to distract from the fact that they need to decarbonise."[131]

If the heralded transition to a green hydrogen economy ever does occur, there is also a big risk that it would divert much-needed renewable electricity towards the production of hydrogen for export, rather than using it to support energy access. South Africa already has one of the world's most carbon intensive grids, with 84 per cent of its electricity generation coming from coal.[132] If more coal and gas power plants were built to cover local needs, this would utterly defeat green hydrogen's climate promise and prolong the phase out of fossil fuels.

The EU's hunt for South African hydrogen and raw materials

"International cooperation and imports of energy carriers are important and rational, but they must not lead to the relocation of the value-adding stages of the value chain from Germany."[133]

Joint hydrogen position paper of German chemical lobby group VCI and chemical trade union IG BCE

Green hydrogen is a contested issue in South Africa. While some industries and political forces promote it to preserve the fossil fuel-based status quo, others seem to truly believe in the possibility of a green hydrogen economy but disagree on how much it should focus on exports versus supplying the domestic market. Others are more sceptical, concerned about the negative impacts of green hydrogen extractivism on vulnerable communities, and still others see it as a dangerous distraction from the goals for democratised and decentralised renewable energy systems under community ownership.[134]

The EU and European companies are influential actors in this battle to determine South Africa's hydrogen future. They have succeeded in tilting the balance in favour of their own neocolonial-extractivist interests: securing access to South African hydrogen exports as well as the raw materials that are required for the hydrogen economy, while making sure that the value-adding stages of the hydrogen value chain remain in Europe. As the 2024-29 mandate of the European Commission states with regards to its geo-economic green industrial policy: "The future of the clean and cutting-edge tech industry must be made in Europe."[135]

Exports, exports, exports

Green hydrogen projects involving EU companies reflect this unequal pattern of exchange. For example, BMW's small pilot fleet of hydrogen cars, which were celebrated with big fanfare when they hit South African roads in February 2024, were built in Germany and only the hydrogen to power them came from Sasol.[136] On the other hand, planned hydrogen hubs like Boegoebaai (for which the Port of Rotterdam signed a deal "to act as a demand aggregator for green hydrogen into Europe"[137]) and Saldanha Bay (involving Irish renewable companies and Luxembourg-headquartered steel giant ArcelorMittal) clearly prioritise the export of low-value added hydrogen products (see Annex 1 for more information).

The hydrogen cooperation agreements that Germany and the Netherlands signed with South Africa in 2023 also have a strong export focus. Amongst other things, the deal with Germany provides "support for bilateral contracts between South African producers and German offtakers" and "partnership opportunities between ports."[138] Similarly, the 2023 Netherlands-South Africa hydrogen deal refers to the "stimulation" of "port development".[139] Germany is expected to become the EU's largest hydrogen importer, counting on 50 to 70 per cent of its needs to be covered by imports – and even more after 2030.[140] Much of these imports are expected to pass through Dutch, Belgian and German ports.

Germany is a particularly strong pusher of South African hydrogen. Since 2023, a dedicated task force with representatives of both governments has been exploring "opportunities to support the export of green hydrogen products... from South Africa to Germany".[141] Germany's development agency (GIZ) and its development bank (KfW) actively facilitate the involvement of the private sector, including through business-government dialogues and funding for pilot projects.[142] German think tanks like Agora have promoted South Africa as one of the world's potential biggest green hydrogen exporters.[143]

In the making: an EU-South Africa deal on hydrogen and raw materials

"I would like to thank you for our meeting and exchange of views on the development of the hydrogen economy... and the need for the EU to secure its access to raw materials." [144]

Anglo American lobbyist to EU Commission, January 2023

The EU as a bloc does not yet have a dedicated hydrogen agreement with South Africa. But according to internal European Commission documents, preparations are ongoing for a deal on critical raw materials and green hydrogen. "The EU is interested in setting up a cooperation with South Africa on critical raw materials due to the very interesting mining profile of the country, notably as regards PGMs, key for the renewable hydrogen value chain," states an internal briefing from the Commission's energy department from November 2023.[145] Platinum group metals (PGMs) are needed for the electrolysers that produce green hydrogen as well as hydrogen fuel cells, and an estimated 89 per cent of the world's reserves lay beneath South African soil.[146]

This is why the EU's number one hydrogen lobby group, Hydrogen Europe, has called for a "special focus" on South Africa in EU raw materials policy.[147] The world's biggest PGM mining company, UK-based Anglo American, has also lobbied the EU Commission for the "establishment of partnerships with third countries" on hydrogen and raw materials.[148] Anglo American owns several controversial platinum mines in South Africa (see page 34), and sees green hydrogen "as a strategic opportunity... to grow demand for our metals".[149]

4.5 Propping up polluters in sacrifice zones

"Green hydrogen primarily serves the speculative plans of major emitters... An entire green hydrogen economy, primarily for export purposes, appears to be built around a few companies, while social protection and investment measures are heavily underfunded."[150]

Courtney Morgan (African Climate Reality Project), Leanne Govindsamy (Centre for Environmental Rights) and Boitumelo Masipa (350Africa.org)

The fact that the alleged hydrogen transition of some of the most polluting and abusive corporations in the country is being financed with public money is an extremely bitter pill for South Africa's frontline communities to swallow. As Natural Justice and the Centre for Environmental Rights put it with regards to steel behemoth ArcelorMittal South Africa (AMSA): "Public money should not be used to subsidise AMSA's green steel development plans or Sasol's plans to develop 'sustainable fuels'." Instead, the groups demand that "big emitters should be responsible for obtaining private and other finance to support their commercial plans."[151]

Sasol and ArcelorMittal are South Africa's second and third largest carbon emitters.[152] As the case study in Section 3.2 shows, although both companies have contaminated the air, soil and water in the industrial Vaal region for decades, they have failed to take responsibility or adequate measures to address these harms.[153] The Vaal is now considered one of South Africa's sacrifice zones, where local communities are subjected to unacceptable pollution that kills and destroys lives.

Despite this track record, Sasol and AMSA were invited to the expert panel that developed South Africa's Green Hydrogen Commercialisation Strategy starting in 2023.[154] Civil society groups were excluded from this panel.[155] As a result, the strategy foresees ample public financial and regulatory support for projects, including those of Sasol and AMSA. Ironically, Sasol is also a beneficiary of two large hydrogen-focused development grants from Germany, a fact which the Fair Finance Coalition criticised as "counterintuitive" given "its fossil fuel-heavy operations". The grants pose "a range of questions regarding... who will truly benefit from these projects," according to the coalition's analysis of grant funding for South Africa's Just Energy Transition.[156]

The Mogalakwena mine and greenwashing by Big Hydrogen

The area around the Mogalakwena mine in Limpopo province is another sacrifice zone where the hydrogen push could come at the expense of local communities. Mogalakwena, run by UK-based Anglo American, is the world's largest open pit platinum mine. In June 2024, the South African Human Rights Commission reported that Anglo American was violating the rights of residents in surrounding villages – including contaminating their water and air – resulting in significant health impacts for the locals.[157] The mine's history is also littered with violent evictions.[158] "Our parents and our grandparents were fighting and crying because they were not compensated for their stolen lands," said Surprise Mashishi of Macua (Mining Affected Communities United in Action). "The mines stole their lands. Even today."[159]

During a workshop organised by Macua in March 2024, residents complained that communal graves had recently been removed for a new hydrogen site at the mine. While some had received a small amount of compensation, others had not even been consulted about the removal. "Anglo American's strides in green hydrogen technology contrast sharply with the community's exclusion from these developments," Macua stated, highlighting "the risk of greenwashing and profit-driven motives overshadowing genuine community and just energy development".[160] Following a social audit carried out by Macua, a recent report concluded that "the challenges communities face near the Mogalakwena mine reveal a significant disconnect between corporate rhetoric and initiatives and the lived experiences of those most affected by mining and green hydrogen projects".[161]

And indeed: Anglo American is using hydrogen to make its business at the Mogalakwena mine appear sustainable. At the centre of this greenwashing exercise is one of Big Hydrogen's major PR darlings: a huge truck that transports ore in the mine. It is powered with green hydrogen, and Anglo American heralds it as "a vital step towards reducing carbon emissions".[162] Videos of the "world's first zero-emission haul truck in action" are all over the internet.[163]

While there is nothing wrong with reducing diesel pollution from mining trucks, these emissions only make up between 0.7 and 1 per cent of Anglo American's total global greenhouse gas emissions.[164] This small share could be reduced by 80 per cent, the company claims, but only if the complete fleet were to be powered by hydrogen, not just a single prototype vehicle. So, their alleged "vital step" towards decarbonisation is actually rather tiny. Notably, Anglo American is one of the 'Carbon Major' companies, which are responsible for the most greenhouse gas emissions in the history of the climate crisis.[165]

4.6 Financial risks

"If development finance institutions are truly interested in development for people and the planet, why are they prioritising green hydrogen for export instead of supporting local manufacturing to support our renewable energy master plan?"[166]

Leanne Godvindsamy, attorney at the Capetown-based Centre for Environmental Rights

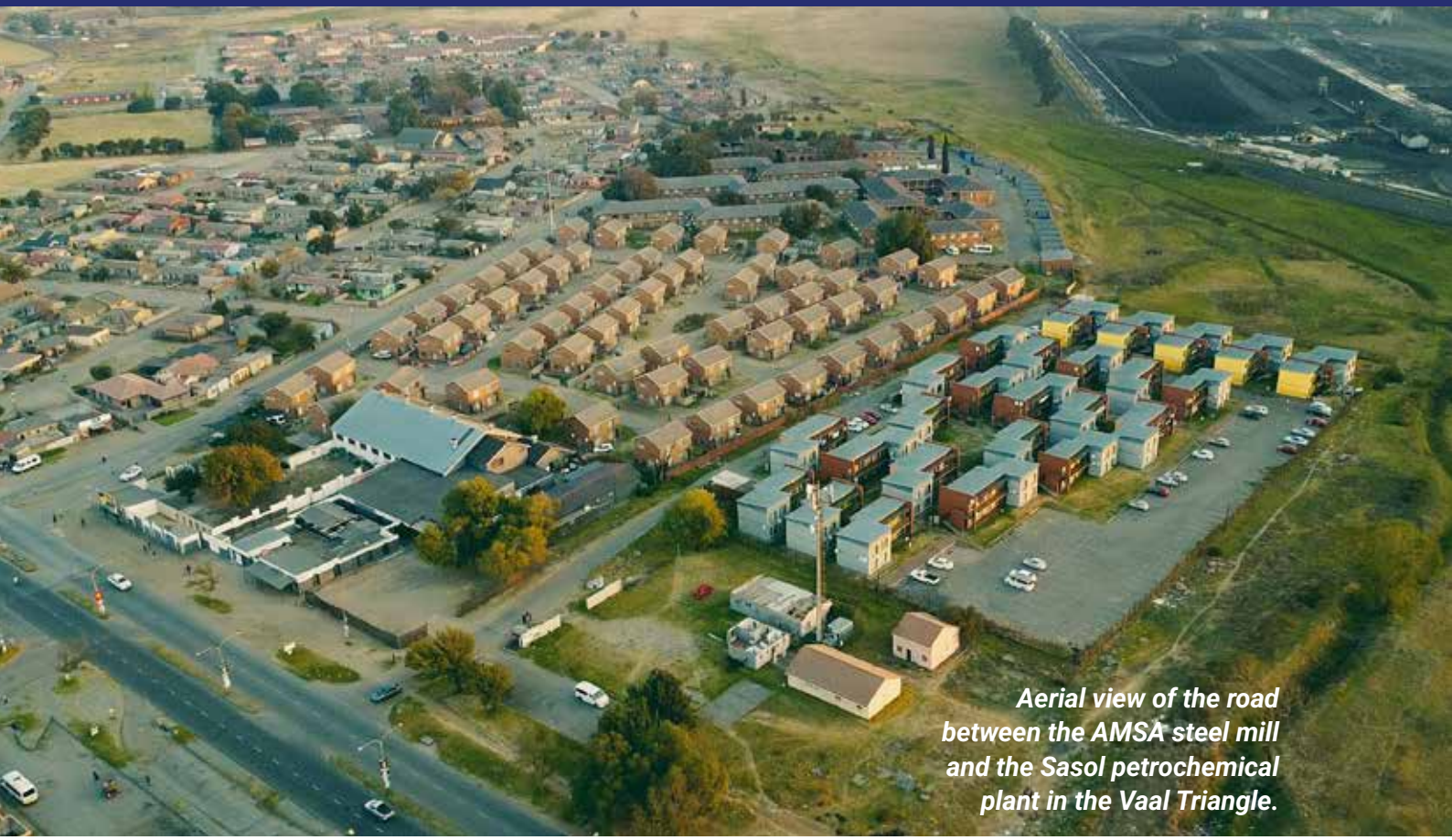
Green hydrogen is extremely capital intensive. As a rule of thumb, facilities capable of producing one megaton (Mt) of the gas per year require investments in the order of US$30 billion[167] – for renewables, water desalination, electrolysers, storage, processing facilities, and so on. There is a risk that South Africa, which plans to produce 4 Mt of hydrogen per year by 2050 (or even up to 13 Mt as the deputy minister of the Department of Public Works and Infrastructure recently suggested),[168] will be left with the costs of some of the planned mega projects. This risk exists because it is not at all certain that the global hydrogen economy and sufficient demand for South African exports will ever materialise (see box page 38).

Yet several private hydrogen projects are supported by South Africa's public purse. Over one-fifth of the US$98.7 billion that the country aims to mobilise for its Just Energy Transition Investment Plan (JET-IP) is earmarked for hydrogen, with half of this money intended to flow into port development for exports.[169] Worryingly, only 10 per cent of the funds that the EU and member states like Germany and the Netherlands have chipped in to support the JET-IP are grants (see Annex 2). The lion's share of the funding, 61 per cent, is from interest-bearing loans – in other words, money that must be repaid. At the same time, most hydrogen projects are located in special economic zones, set up to attract foreign investment by offering tax breaks for corporations. This considerably lowers the revenue share for the state.

All of this threatens to significantly increase South Africa's debt burden. "Taking on significant public debt to finance green hydrogen related investments could lead to worsening fiscal conditions," warns H2 Watch South Africa, a coalition of civil society groups and communities that are affected by hydrogen projects. They warn that the money flowing into green hydrogen "will also draw precious resources away from investment in other just transition solutions that would serve the people of South Africa first".[170]

Poster for South Africa's Green Hydrogen Summit in 2023. Source: Natural Justice[171]

South Africa's prestigious 2023 Green Hydrogen Summit was hosted by the Presidency. It was sponsored by companies from across the hydrogen supply chain, which might have influenced its agenda. Germany, the Netherlands, Belgium and Germany's development agency GIZ were also prominent partners.



Aerial view of the road between the AMSA steel mill and the Sasol petrochemical plant in the Vaal Triangle.

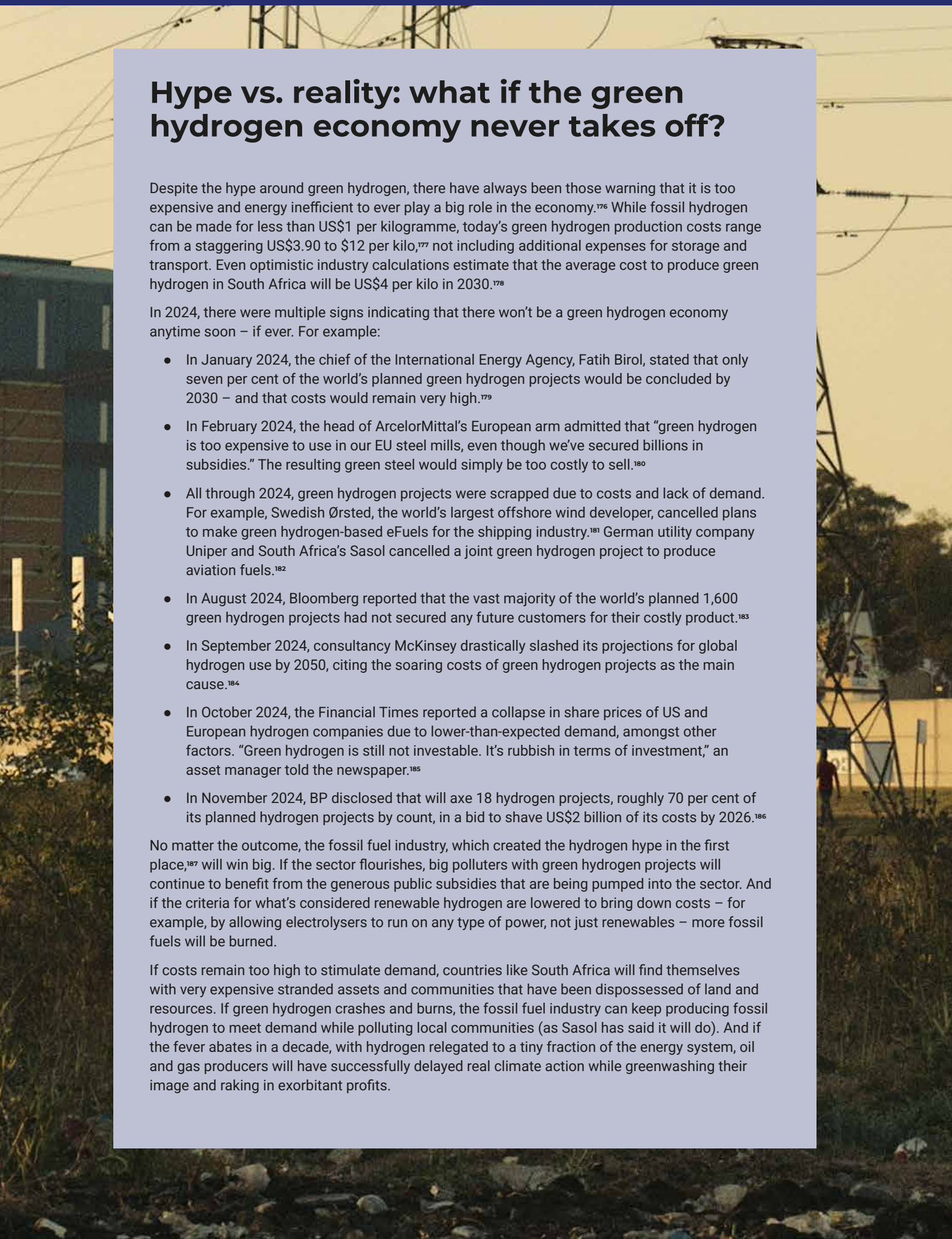
De-risking hydrogen to benefit private capital

"Corporations like to use the word de-risk. What that means is essentially they don't pay. If a project works, they get the benefit – but if it doesn't, they don't get the costs. That's the reality of green hydrogen. More debt for South Africa. It just puts us deeper into that trap."[172]

Yegeshni Moodley, climate and energy campaigner at environmental justice group groundWork

Public money – including from EU development agencies and the Development Bank of Southern Africa – is used to subsidise and de-risk private investors. One example is the SA-H2 fund, a blended finance fund launched by the Netherlands and Denmark to raise 1 billion euro for green hydrogen projects in South Africa. A grant of 50 million euro by the Dutch government to kickstart SA-H2 is the biggest hydrogen-related grant to South Africa's JET-IP.[173] SA-H2 is run among others by Climate Fund Managers, a Dutch asset management firm, and uses public grants and loans to try to mobilise additional private investment for South Africa's green hydrogen sector.[174]

The 'de-risking' of private hydrogen projects with public money and investor-friendly rules has been sharply criticised by development economists. While it might turn African states into successful green hydrogen exporters, it "will most likely reproduce the enclave type resource extraction" of multinational corporations, argue economists Daniela Gabor and Ndongo Samba Sylla. They warn that this could – again – result in huge transfers of material and financial resources from the African continent to the Global North.[175]



Hype vs. reality: what if the green hydrogen economy never takes off?

Despite the hype around green hydrogen, there have always been those warning that it is too expensive and energy inefficient to ever play a big role in the economy.[176] While fossil hydrogen can be made for less than US$1 per kilogramme, today's green hydrogen production costs range from a staggering US$3.90 to $12 per kilo,[177] not including additional expenses for storage and transport. Even optimistic industry calculations estimate that the average cost to produce green hydrogen in South Africa will be US$4 per kilo in 2030.[178]

In 2024, there were multiple signs indicating that there won't be a green hydrogen economy anytime soon – if ever. For example:

- In January 2024, the chief of the International Energy Agency, Fatih Birol, stated that only seven per cent of the world's planned green hydrogen projects would be concluded by 2030 – and that costs would remain very high.[179]
- In February 2024, the head of ArcelorMittal's European arm admitted that "green hydrogen is too expensive to use in our EU steel mills, even though we've secured billions in subsidies." The resulting green steel would simply be too costly to sell.[180]
- All through 2024, green hydrogen projects were scrapped due to costs and lack of demand. For example, Swedish Ørsted, the world's largest offshore wind developer, cancelled plans to make green hydrogen-based eFuels for the shipping industry.[181] German utility company Uniper and South Africa's Sasol cancelled a joint green hydrogen project to produce aviation fuels.[182]
- In August 2024, Bloomberg reported that the vast majority of the world's planned 1,600 green hydrogen projects had not secured any future customers for their costly product.[183]
- In September 2024, consultancy McKinsey drastically slashed its projections for global hydrogen use by 2050, citing the soaring costs of green hydrogen projects as the main cause.[184]
- In October 2024, the Financial Times reported a collapse in share prices of US and European hydrogen companies due to lower-than-expected demand, amongst other factors. "Green hydrogen is still not investable. It's rubbish in terms of investment," an asset manager told the newspaper.[185]
- In November 2024, BP disclosed that will axe 18 hydrogen projects, roughly 70 per cent of its planned hydrogen projects by count, in a bid to shave US$2 billion of its costs by 2026.[186]

No matter the outcome, the fossil fuel industry, which created the hydrogen hype in the first place,[187] will win big. If the sector flourishes, big polluters with green hydrogen projects will continue to benefit from the generous public subsidies that are being pumped into the sector. And if the criteria for what's considered renewable hydrogen are lowered to bring down costs – for example, by allowing electrolysers to run on any type of power, not just renewables – more fossil fuels will be burned.

If costs remain too high to stimulate demand, countries like South Africa will find themselves with very expensive stranded assets and communities that have been dispossessed of land and resources. If green hydrogen crashes and burns, the fossil fuel industry can keep producing fossil hydrogen to meet demand while polluting local communities (as Sasol has said it will do). And if the fever abates in a decade, with hydrogen relegated to a tiny fraction of the energy system, oil and gas producers will have successfully delayed real climate action while greenwashing their image and raking in exorbitant profits.

4.7 Exclusion of affected communities

"Communities whose livelihoods are being gambled with have been ignored or very strategically steamrolled by decision-makers."[188]

Nuchey van Neel, member of feminist alliance WoMIN, about the nearby Boegoebaai project

Community involvement in the issue of green hydrogen in South Africa has been very minimal. Affected municipalities have been at least partially excluded from key planning and decision-making processes. Community members have complained about exclusionary practices by local and provincial governments, specifically when the allocation of land for large hydrogen projects such as Boegoebaai has been at stake.[189]Researchers speak of a "culture of local government exclusion" around green hydrogen.[190]

"It all seems like history is happening all over again... where our people have been... disregarded and forced to make concessions in giving up our land for mineral resource extraction," a community activist from the Namakwa District, where the Boegoebaai project is being planned, told researchers. "We can't allow this behaviour to continue. We need to be treated like equal human beings at the negotiation table. And our government is selling us out to these international corporates."[191]

Corporate Europe Observatory heard similar complaints in May 2024 from people living in Ermelo, a mining town in South Africa's Mpumalanga province. Here, although the construction of two green hydrogen and ammonia plants led by German company Enertrag could start at any time, people have neither been properly consulted nor informed. "They've received all of the permits from the government – even the ones for which they have to have a consultation with the community," Given Zulu of the Khuthala Environmental Care Group explains. "But they did not do this – even though they got the permit."[192]

Incidentally, lack of transparency and community involvement around green hydrogen is not just a problem in South Africa. "We have not come across a single hydrogen project with bottom-up participation and consultation of the community prior to the decision for the project," say researchers Johanna Tunn and Tobias Kalt of the University of Hamburg.[193] Their research has mapped hydrogen projects in 28 prospective exporting countries, mostly in Africa.[194] The bottom line is that a small group of political and economic elites is likely to profit from these top-down, centralised mega projects.

4.8 Sustainability standards won't fix the problems

"Is green hydrogen truly worth it for Africa? The answer, as it stands, is no."[195]

Karabo Mokgonyana, Power Shift Africa

NGOs and research institutes have offered sustainability standards as the solution to counter the risks of the looming hydrogen curse in countries like South Africa.[196] Their work has been echoed by parts of the corporate hydrogen lobby, by international institutions and by governments.

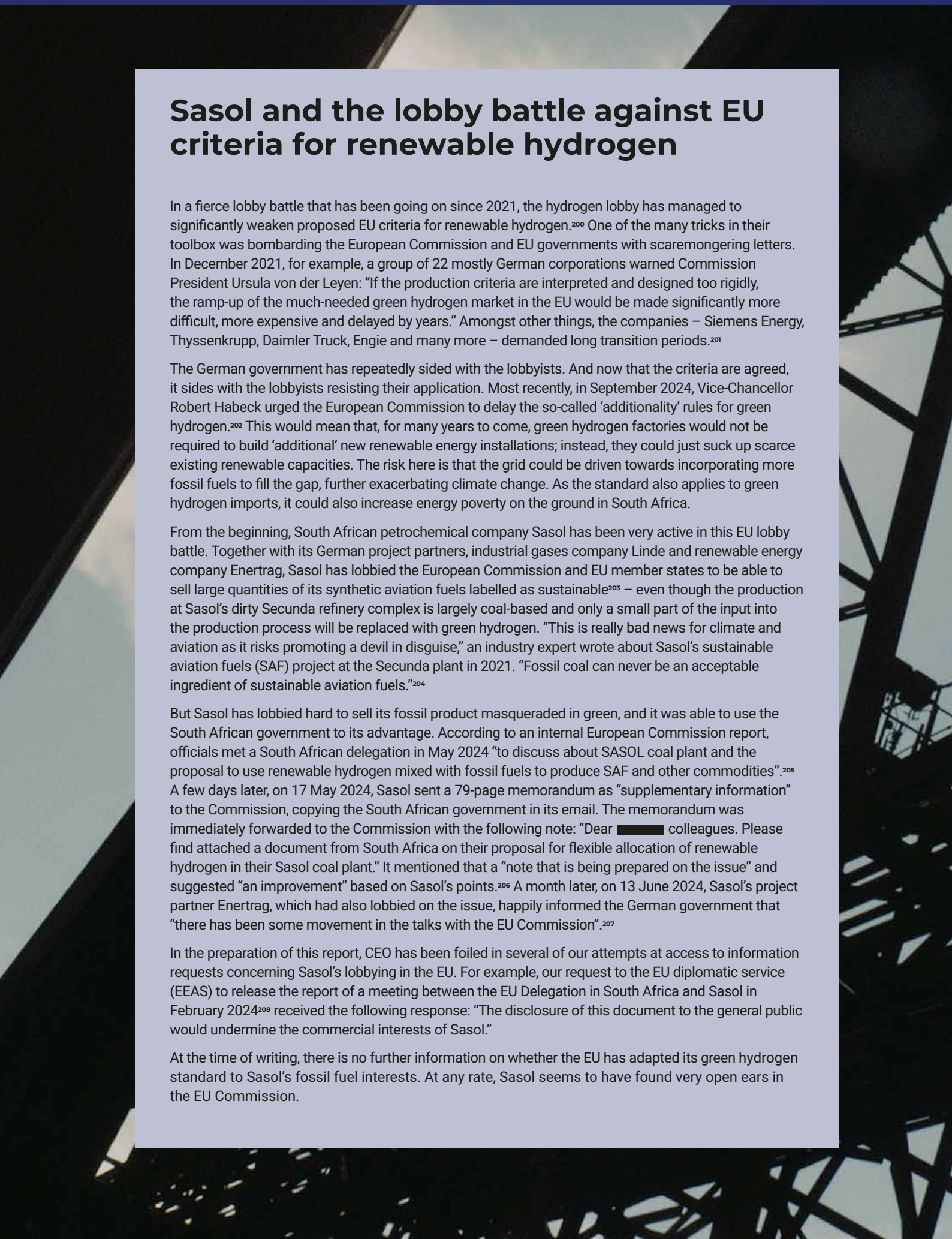
The German government, for example, in cooperation with industry, has developed detailed sustainability criteria for its H2Global funding scheme, which subsidises green hydrogen exports to Europe. Exporters must show that their operations are not close to environmentally sensitive areas, and they must follow International Labour Organisation standards, refrain from using drinking water in arid areas, and manage waste sustainably when desalination is used. They must also invest in kindergartens, schools or hospitals. Further, exporters "shall ensure" that no parts of the project "require Forced Resettlement" or that no "Forced Resettlement has taken place at the site… within the three years preceding" the project.[197]

Importantly, these standards will apply to only a few select hydrogen – enclave-like – projects that will benefit from H2Global funding. How strictly they will be verified and enforced in practice is a whole different story (and currently still up in the air). The fact that both the German government and the country's big businesses have previously lobbied to water down legally binding standards for green hydrogen on the EU level should give cause for concern about how serious they are about a socially and ecologically just hydrogen economy (see box on following page).

Little more than a greenwashing exercise

The decade-long experience with sustainability standards, certification programmes and roundtables in sectors like palm oil and soy should also serve as a warning. These schemes have neither eliminated the violence and destruction around individual plantations nor have they made the sectors more sustainable overall. In fact, they have even caused harm by putting a positive spin on environmental destruction and abuse.[198]

In any case, communities in South Africa do not want to be fobbed off with standards. "We don't need small little island pockets dotted around the continent, which do not become an integral part of our economy," argues Ulrich Steenkamp of Earthlife Africa. "I'm not talking about hydrogen companies building clinics in regions without money for doctors and nurses. I'm talking about German car manufacturers building plants in South Africa that use green steel from green hydrogen and all of that has been produced here. I'm talking about actually amplifying the economic possibilities of the communities that will be impacted by hydrogen projects. And I'm talking about true community buy-in, based on public participation and free, prior and informed consent."[199] The reality on the ground could not be further from this vision.



Sasol and the lobby battle against EU criteria for renewable hydrogen

In a fierce lobby battle that has been going on since 2021, the hydrogen lobby has managed to significantly weaken proposed EU criteria for renewable hydrogen.[200] One of the many tricks in their toolbox was bombarding the European Commission and EU governments with scaremongering letters. In December 2021, for example, a group of 22 mostly German corporations warned Commission President Ursula von der Leyen: "If the production criteria are interpreted and designed too rigidly, the ramp-up of the much-needed green hydrogen market in the EU would be made significantly more difficult, more expensive and delayed by years." Amongst other things, the companies – Siemens Energy, Thyssenkrupp, Daimler Truck, Engie and many more – demanded long transition periods.[201]

The German government has repeatedly sided with the lobbyists. And now that the criteria are agreed, it sides with the lobbyists resisting their application. Most recently, in September 2024, Vice-Chancellor Robert Habeck urged the European Commission to delay the so-called 'additionality' rules for green hydrogen.[202] This would mean that, for many years to come, green hydrogen factories would not be required to build 'additional' new renewable energy installations; instead, they could just suck up scarce existing renewable capacities. The risk here is that the grid could be driven towards incorporating more fossil fuels to fill the gap, further exacerbating climate change. As the standard also applies to green hydrogen imports, it could also increase energy poverty on the ground in South Africa.

From the beginning, South African petrochemical company Sasol has been very active in this EU lobby battle. Together with its German project partners, industrial gases company Linde and renewable energy company Enertrag, Sasol has lobbied the European Commission and EU member states to be able to sell large quantities of its synthetic aviation fuels labelled as sustainable[203] – even though the production at Sasol's dirty Secunda refinery complex is largely coal-based and only a small part of the input into the production process will be replaced with green hydrogen. "This is really bad news for climate and aviation as it risks promoting a devil in disguise," an industry expert wrote about Sasol's sustainable aviation fuels (SAF) project at the Secunda plant in 2021. "Fossil coal can never be an acceptable ingredient of sustainable aviation fuels."[204]

But Sasol has lobbied hard to sell its fossil product masqueraded in green, and it was able to use the South African government to its advantage. According to an internal European Commission report, officials met a South African delegation in May 2024 "to discuss about SASOL coal plant and the proposal to use renewable hydrogen mixed with fossil fuels to produce SAF and other commodities".[205] A few days later, on 17 May 2024, Sasol sent a 79-page memorandum as "supplementary information" to the Commission, copying the South African government in its email. The memorandum was immediately forwarded to the Commission with the following note: "Dear [redacted] colleagues. Please find attached a document from South Africa on their proposal for flexible allocation of renewable hydrogen in their Sasol coal plant." It mentioned that a "note that is being prepared on the issue" and suggested "an improvement" based on Sasol's points.[206] A month later, on 13 June 2024, Sasol's project partner Enertrag, which had also lobbied on the issue, happily informed the German government that "there has been some movement in the talks with the EU Commission".[207]

In the preparation of this report, CEO has been foiled in several of our attempts at access to information requests concerning Sasol's lobbying in the EU. For example, our request to the EU diplomatic service (EEAS) to release the report of a meeting between the EU Delegation in South Africa and Sasol in February 2024[208] received the following response: "The disclosure of this document to the general public would undermine the commercial interests of Sasol."

At the time of writing, there is no further information on whether the EU has adapted its green hydrogen standard to Sasol's fossil fuel interests. At any rate, Sasol seems to have found very open ears in the EU Commission.

5. CONCLUSION

Throughout European capitals, and particularly in Brussels, the public has been told that developing green hydrogen in South Africa will be a win-win. It will provide jobs and development for South Africa and make use of vast swathes of 'empty' land, while exports will simultaneously help to decarbonise Europe's dirty industries.

However, the stories gathered for this report from community members living in and around South Africa's proposed green hydrogen projects provide a totally different perspective. From the fisherfolk in Boegoebaai to residents of the Vaal Triangle (dubbed "the most polluted place on earth"),[209] the experiences are strikingly similar. The stories these communities tell are about land grabbing and water poisoning, the destruction of health and livelihoods, and the deepening of the structural inequality and poverty caused by decades of exploitation under Apartheid and beyond.

"We as South Africans aren't using green hydrogen, so why should it be produced on our land? Why can't it be developed in Europe or in other countries that need it?"[210]

Elizabeth Slander, Nama community leader from the Boegoebaai region

A closer look shows that the EU's drive for hydrogen – which is turbo-fuelled by Germany in particular – is in essence a concerted resource grab to fuel its own clean transition at the expense of South African communities. The dominant export-driven approach is the same neocolonial extractivist pattern that has historically steered other raw materials towards Europe – but this time with a flimsy green façade.

Europe doesn't actually want South Africa's 'green' steel made from hydrogen, nor does it want to import 'green' cars: it only wants the green hydrogen, and for its own companies to provide the technology to produce it. South Africa's own development and decarbonisation takes second place to Europe's greening of its own steel and automobile industries and keeping the jobs that go with it. According to internal European Commission documents, preparations for a new deal with South Africa on critical raw materials and green hydrogen are ongoing, and the EU also hopes to gain access to the country's platinum, a key component for electrolysers in the hydrogen economy.

In cases where the South African government claims that switching to green hydrogen will clean up domestic polluting industries, such as in the Vaal Triangle, communities counter that this will only prolong the existence of dirty businesses while people's health continues to suffer. Sasol and ArcelorMittal South Africa (AMSA) have been very influential in shaping the country's green hydrogen strategy, which has delivered neither jobs nor a cleaner environment according to Kenny Matili from Vaal Environmental Justice Alliance. On the contrary, "it's a way of them trying to profit over the lives of our people".[211]

Sasol claims that green hydrogen will ensure that no one is left behind in the just transition. Given Zulu believes otherwise: "When you look at the reality, everyone is left behind."[212] He lives in Ermelo, a coal mining town in Mpumalanga province where communities in South Africa's historical 'sacrifice zones' are facing new green hydrogen projects. The advent of green hydrogen is just the latest environmental injustice in a long history that has seen people's health and livelihoods sacrificed for polluting industry and profits.

Behind the grand rhetoric, frontline communities have been left in the dark about green hydrogen and its risks. There has been very little – if any – information shared with them, and no free, prior and informed consent. Communities are having green hydrogen projects imposed upon them, along with all the negative impacts that they entail, yet their voices are conspicuously absent in both South African and European policymaking circles. Including them would contradict the 'win-win' narrative being pushed by politicians and industry.

"The transition that is coming is not for us... It's for businesspeople, maybe for their exports and their trade. But for us – we're damaged."[213]

Mpho Selemela from Vaal Environmental Justice Alliance

There's still a big question mark about whether industry's hydrogen hype and the subsequent fever will ever fully materialise, and the cancellation of hydrogen projects due to high costs is commonplace. But no matter what happens, big polluters will end up winning. Generous public subsidies are already flowing, and the grip of hydrogen means the likes of Sasol and AMSA can continue with their deadly business models so long as they consider using green hydrogen in the future. In any case, if the fever subsides, it will be the South African government left footing the bill: it has taken on substantial loans to fund the hydrogen economy and seems determined to use them to 'de-risk' private sector investments.

The hydrogen scramble must be stopped in its tracks before it causes any more damage. The following are our recommendations for the EU:

- The EU must scrap its hydrogen import targets and wake up to the dangerous and destructive impact of its green hydrogen plans on local communities and their environments. This will require tuning out the hydrogen lobby and listening to the voices of affected people. The African People's Climate and Development Declaration, signed by over 500 African civil society groups in September 2023, calls green hydrogen a "false solution we reject… Green hydrogen for export does nothing to increase access for the 600 million Africans without access to energy. Instead it turns our African renewable energy into an exportable commodity and ships our energy overseas."
- The EU should support South Africa with its own transition, rather than pushing it to sign new agreements that enable the further plundering of its resources. To bring everyone along in the just transition, South Africa must be able to make policies based on its own social and economic needs, and not those of the EU. An alternative development model should be one based on energy justice and democracy rather than green extractivism.

It is also important that European civil society organisations withdraw their support for green hydrogen imports. Europe cannot use green hydrogen to decarbonise at the expense of the Global South. Any just transition must necessarily be a global one. In addition, proposed sustainability standards should not be used to justify green hydrogen projects; they have been exposed as greenwashing exercises that may in fact do more harm than good.

No matter what the focus of their fight– oil and gas, coal or platinum mines, polluting factories or green hydrogen – communities across South Africa will continue to resist the degradation of their community or their home as sacrifice zones.

"There's a lot of strength in our community movements, and community members understand that when you face injustice, the secret to success is to come together in solidarity and build power together. We are on the road to dismantling corporate power."[229]

Yegeshni Moodley, climate and energy campaigner at environmental justice group groundWork

ANNEX 1:
Planned South African green hydrogen projects involving companies headquartered in Europe

This table is based on the list of Strategic Integrated Projects (SIP) published by the South African government in December 2022, plus a number of additional projects that are regularly identified as priority projects.[214] It excludes those projects for which no involvement of European companies could be established through additional desk research. Some projects that are interlinked have been combined.

Project	What is planned?	Mostly for export or not?	Companies involved
Boegoebaai Green Hydrogen Development Programme	South Africa's flagship export project with a green hydrogen and ammonia production facility as part of a larger Special Economic Zone and new mega port, in the Northern Cape Province	**Export**	Sasol (South Africa), Port of Rotterdam (Netherlands, as part of a consortium bidding for the port construction[215] and as offtaker for the exports[216])
Hydrogen Valley Corridor	Connects nine pilot projects and links hydrogen production and use sites in four different 'hubs': the Mogalakwena mining region in Limpopo, the larger industrial area around Johannesburg (Gauteng), and the export-oriented coastal areas of Durban and Richards Bay (KwaZulu-Natal)	**Domestic** (with export focus on the coast)	Anglo American (UK), Engie (France) and Bambili Energy (South Africa) are leading, [217] but more companies are involved in the pilot projects. For example, EDF (France) built the solar plant needed for Anglo American's hydrogen truck in its Mogalakwena mine (see page 34 for more information)
Hive Energy Green Ammonia	Green hydrogen and ammonia production in the Coega Special Economic Zone and port, Eastern Cape Province	**Export**	Hive Energy (UK), BuiltAfrica (South Africa),[218] Linde (Germany)[219]
Saldanha Green Hydrogen Hub	Several projects producing hydrogen, green ammonia, green hydrogen and green direct reduced iron (DRI) at Arcelor-Mittal's dormant Saldanha steel factory in the Saldanha Bay Special Economic Zone, Western Cape Province	**Export**	ArcelorMittal (Luxembourg), Sasol (South Africa),[220] Phelan (Ireland),[221] Mainstream Renewable Power (Ireland)[222]
Vaal Triangle: Sasolburg Green Hydrogen Hub, and Vaal Carbon Capture and Utilisation	Procurement of renewable energy for Sasolburg's green hydrogen production (Free State province). Combined with CO2 captured from AMSA steel plant (Gauteng province) as feedstock for Sasol's chemicals and fuels	**Domestic**	Sasol (South Africa), ArcelorMittal (Luxembourg) [223], but more companies are involved in related projects. For example BMW and Anglo American to develop hydrogen vehicles.[224]
HySh iFT	Production of green hydrogen and aviation fuels at Sasol's petrochemical plant in Secunda, Mpumalanga Province	**Export**	Sasol (South Africa), Linde (Germany), HydRegen (South Africa), Enertrag (Germany)[225]
HDF Renewstable Mpumalanga	Green hydrogen power plant to supply electricity to South Africa's grid, Mpumalanga Province	**Domestic**	HDF Energy France[226]
Camden and Hendrina Green Hydrogen and Ammonia	Green hydrogen and ammonia facilities as part of larger renewable energy complexes, near Ermelo, Mpumalanga Province	**Unclear**	Enertrag (Germany)[227]

ANNEX 2:
Pledged EU funding for South Africa's Just Energy Transition

The table is based on the Frequently Asked Questions document published by the Presidency of South Africa for its Just Energy Transition (JET) Grants Register. The register tracks all public and private funding for South Africa's JET and is updated quarterly.[228]

	Grants	Concessional loans	Commercial loans and equity	Export credits	Total
EU/European Investment Bank (EIB)	125 million	1,080 million	216 million	-	1,421 million
Germany	292 million	1,048 million	-	-	1,340 million
France	4 million	1,080 million	-	-	1,084 million
Denmark	23 million	58 million	65 million	-	146 million
Netherlands	167 million	-	-	-	167 million
Spain	16 million	-	378 million	1,890 million	2,284 million
Total	**627 million (10%)**	**3,266 million (51%)**	**659 million (10%)**	**1,890 million (29%)**	**6,442 million (100%)**

Figures from June 2024, in US$

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THE SCRAMBLE FOR HYDROGEN IN SOUTH AFRICA

Corporate Europe Observatory