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# Hyped hydrogen Hidden harm

November 2024



Photo: Senthathi Katlego Zasekhaya

**“We used to have water but since the mine arrived, even a drop feels like a gift. We are poor and finding water has become a daily battle.”**

**Charmaine Kgole**  
Mapela Skimming, Limpopo.

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# Executive summary

Developing renewable energy technologies is vital for global efforts to address the climate crisis. **But generating renewable (or ‘green’) energy requires significant inputs, including minerals, land, and water.** Green hydrogen is a case in point. It requires not only large amounts of other renewable energy, such as wind or solar power, but also metal such as platinum, and water. **How these resources are acquired, from whom, for whom, and under what conditions are critical questions for a just energy transition.**



This report examines the emerging green hydrogen sector from a decolonising perspective. It looks at how the green hydrogen industry is developing in Europe, particularly in the **Netherlands**, and in **South Africa**. South Africa has one of the world's largest reserves of platinum group metals and plans to produce green hydrogen for export.

The report's analysis spans the industry and the experience of communities directly affected by green hydrogen developments. In doing so it also explicitly considers how energy industry development that is gender blind in critical areas affects global commitments to achieve gender equality.

## **Two realities: the Netherlands and South Africa**

The Netherlands has set itself up to become a European hub for the production, import, and distribution of green hydrogen. The country has invested heavily in infrastructure, including development of the Port of Rotterdam as a centre for hydrogen. The government has invested substantially in distribution and storage and in supporting business actors to develop a green hydrogen economy. The Netherlands also benefits from massive investment in European Union-wide hydrogen infrastructure.

By contrast, South Africa, which has abundant solar and wind power potential as well as platinum reserves, faces significant challenges in terms of establishing the infrastructure for domestic use of hydrogen (as opposed to export). South Africa can produce hydrogen, but how far this will benefit the people of the country is uncertain at best. The winners in South Africa's green hydrogen story are likely to be big businesses, foreign investors, and countries in Europe, such as the Netherlands, that have set themselves up to import hydrogen from the Global South to fuel the North.

While governments and companies see a positive future for hydrogen, communities around some mine sites face a very different reality. The communities of Mokopane live beside the Mogalakwena platinum mine in Limpopo province, which is now also the location of a hydrogen production facility planned by mining company Anglo American with commercial partners. This complex is part of a 'hydrogen valley', stretching from the Mogalakwena mine to the port city of Durban, part of a national framework that Anglo American has helped create in South Africa.

The Mokopane mine has been the site of decades of concerns about the harmful impact of mining on communities and the lack of benefits. Little has changed. On the contrary, the development of green hydrogen risks exacerbating these negative impacts.

In 2024, community members of MACUA (Mining Affected Communities United in Action) in Mokopane and Mapela carried out a social audit. The audit found that one of the most pressing issues the communities face is water scarcity. This has worsened to a point where consuming contaminated water has become the norm, and people fear the development of green hydrogen will lead to even greater deterioration.

The water issues communities in Mokopane face occur in the context of historical inequalities. During apartheid, the regime's policies ensured the disproportionate allocation of resources, facilitating reliable water access in predominantly White areas and to the mining industry, while leaving marginalised Black communities with insufficient infrastructure and services.

The social audit also exposed how communities face serious challenges in accessing energy. This reality sits in stark contrast to the fact that two forms of energy are being considered for production: solar energy to make green hydrogen and the hydrogen itself (being used to make hydrogen-powered mining trucks). This energy production will prioritise the business interests of the company.

Despite gender equality commitments that businesses and governments have made over many years, the mining of minerals and metals in the context of the energy transition has perpetuated patterns that entrench patriarchy. Its impacts disproportionately affect women and sideline women's voices. This is evident at Mokopane, where the social audit revealed how women are marginalised in consultation processes as well as pervasive concerns about gender-based violence. All the issues the social audit documented affect women differently – and yet women have few if any meaningful avenues to ensure the company addresses their concerns.

### **Justice in transition: a new way forward**

The fossil fuel era was defined by a highly extractive approach to energy, one in which Global South countries were primarily exporters of oil, coal, and gas. This extractivist approach is embedded in the history of colonialism. A just energy transition should not replicate this model. Yet, as this report shows, this is exactly what is happening. Energy and energy inputs are extracted from the Global South for use in the Global North. This continues to lead to uneven development, where the Global North profits while the Global South faces various forms of poverty, including energy poverty, and is burdened with debt.

Holding deeply entrenched economic power built on the profound historical injustices of colonialism, the EU and the Netherlands have given their industries a massive boost through legislation and frameworks that support green hydrogen. Meanwhile, commitments to a just transition and to advancing gender equality are largely invisible in their efforts to advance this technology.

The EU and the Netherlands must change course and urgently engage in a review of policies on green hydrogen. As a fuel source, it consumes substantial amounts of energy. As an industry, it reproduces and exacerbates exploitation.

**Critical elements of an EU and Netherlands policy review should ensure that:**

- ▶ All policy on the energy transition is consistent with commitments to justice in the transition, addressing the climate crisis without leaving anyone behind in terms of resources, access to clean water, and access to clean energy.
- ▶ Policy deeply protects human rights and particularly women's rights.
- ▶ Governments move away from funding and supporting extractivist models that exploit countries and communities in the Global South.
- ▶ Funding structures are redesigned and based on reparations, ensuring fair benefits and opportunities for all parties involved.
- ▶ Governments hold energy companies accountable for human rights abuses and environmental damages across direct and indirect supply chains as a key component of the just transition.
- ▶ Policy development and decision-making are rooted in the meaningful consultation of affected communities, prioritising the voices of women, youth and marginalised groups.



Photo: Senthathi Katlego Zasekhaya

**Mogalakwena Platinum Mine road sign in Ga Molekana, Limpopo.**

# Introduction

Major world economies such as the European Union (EU) and United States (US) **increasingly endorse the view that we can substitute fossil fuels with renewable energies while maintaining economic growth** and the economic policies of the fossil-fuel-based economy. This belief, also known as the ‘decarbonisation consensus’,<sup>1</sup> simplifies climate action to a single issue: reducing carbon dioxide (CO<sub>2</sub>) emissions. **It ignores the questions of excessive and unequal resource consumption and wealth inequality**, particularly between the Global North and the Global South. For example, **the EU’s material footprint** (all materials extracted globally to serve EU consumption) **is double a sustainable level.**<sup>2</sup>



A focus on renewable energy is, of course, crucial as part of global efforts to address the climate crisis. But generating renewable (or 'green') energy requires significant inputs, including minerals, land, and water. The economic model major economies use to secure their access to renewable energy relies on extracting many of these resources from the Global South to make energy for consumption in the Global North. This continues to lead to uneven development, where the Global North profits while the Global South faces various forms of poverty, including energy poverty, and is burdened with debt.

Green hydrogen is a case in point. This energy source is the focus of increasing attention in the EU's decarbonisation approach. It requires not only large amounts of renewable energy (see visualisation 'The resources needed to cover EU's yearly green hydrogen demand in 2030', page 12 ) but also metal to act as an electrolyser (a key process in making hydrogen) and water. The most important metal for this is platinum, and demand for platinum group metals is predicted to increase to meet the growing demand for green hydrogen.<sup>3</sup>

## Report framework: a decolonising perspective

This report examines the emerging structure of the green hydrogen industry from a decolonising perspective. The fossil fuel era was defined by a highly extractive approach to energy in which Global South countries were exporters of oil, coal, and gas. This extractivist approach is embedded in the history of colonialism. Many oil, coal, and gas companies originated in European countries, establishing their access to global fossil fuel deposits through colonising land, labour, and cultures.

The business model underpinning the renewable energy sector is replicating the patterns of exploitation and inequality that characterised the fossil fuel sector. Taking a decolonising approach, the report looks at how the green hydrogen industry is developing in Europe, particularly in the **Netherlands**, and in **South Africa**. The Netherlands is one of the EU's strongest advocates for expanding this type of renewable energy, while South Africa has one of the world's largest reserves of platinum group metals and plans to produce green hydrogen for export.

With this approach, the report examines how the energy transition currently preserves and replicates deep structural inequalities in the global economy. It involves a model of energy production whereby Global South countries are primarily suppliers of inputs; energy is produced or extracted in regions that remain in energy poverty; Global South countries are pushed to retain an export-oriented economy; and there is little consideration of the implications of Europe's deeply unequal consumption of resources. A decolonising approach also requires consideration of the patriarchal forms of control and organising which were embedded in colonialism, and the importance of seeing how struggles for justice and equality intersect.

The report includes a case study of the Mogalakwena platinum mine in South Africa, where the multinational company Anglo American plans to construct a green hydrogen production facility. The case study situates developments around Mogalakwena in the historical context of mining in South Africa and is based on a social audit done by and with members of the mine-impacted communities. The case study examines the impact of mining and green hydrogen developments on human rights and gender equality.

The report concludes with recommendations to governments in the Global North and to Anglo American and other companies involved in mining and green hydrogen projects. We strongly advocate that all relevant actors make decolonising, human rights, and gender commitments central to how green hydrogen develops as an industry.

Before the publication of this report, SOMO and ActionAid Netherlands contacted Anglo American to share our findings and provide the company with a right to reply. However, Anglo American did not respond to our inquiries.

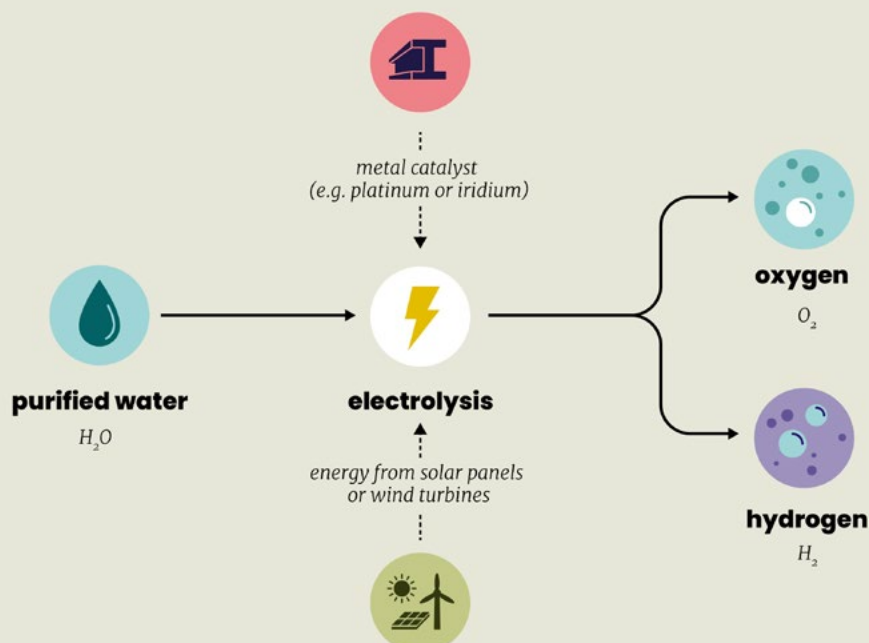
### 'Grey', 'blue', and 'green' hydrogen

Hydrogen is used as a fuel for heating and in combustion engines but can also be used for electricity storage. It functions independently from the grid and is therefore easily traded internationally.

Hydrogen production is not new. Most hydrogen ('grey' hydrogen) is produced through steam reforming of non-renewable sources, such as natural gas, a process that releases CO<sub>2</sub> emissions. With today's focus on decarbonisation, low-emissions hydrogen ('blue' and 'green') is gaining traction. Blue hydrogen is similar to grey hydrogen but involves capturing the CO<sub>2</sub> emissions from burning natural gas using carbon capture, utilisation, and storage (CCUS) technology.

Advocates see blue hydrogen as a transitional stage towards the eventual use of green hydrogen. Green hydrogen is produced by splitting water into hydrogen and oxygen using a critical mineral or metal such as platinum and a massive amount of electricity supplied by large-scale solar and wind farms.

### How is green hydrogen produced?







## 2. Green hydrogen: a resource-intensive sector

The green hydrogen production process is resource and energy intensive.<sup>4</sup> **It requires substantial amounts of renewable energy** (such as from wind or solar power) **and large amounts of water** in countries where green hydrogen is produced. Another key resource is metal such as platinum, needed for electrolyser processes.

Demand for platinum for this purpose is expected to grow. The World Platinum Investment Council has noted: **“Hydrogen will play a pivotal role in efforts to reach net zero, and investment, collaboration and the roll-out of supportive government policies are intensifying in order to achieve this, directly benefiting platinum demand.”**<sup>5</sup>



## The resources needed to cover EU's yearly green hydrogen demand in 2030

Main resources		Additional impacts	
	<b>180 to 600 thousand litres of freshwater</b> or over <b>1.6 million litres of seawater</b>		<b>1.2 thousand tonnes of waste</b> , consisting of brine (contains salt and other chemicals) and cooling water
	<b>1.3 tonnes of platinum</b>		Between <b>330 and 440 thousand tonnes of ore</b>
	Around <b>1,000 megawatt hours of electricity</b> is used for the electrolysis process		If seawater is desalinated, between <b>0.2 and 1.6 megawatt hours</b> will be added
	<b>1.3 thousand ha of land</b> for solar panel fields and <b>3.2-6.3 ha of land</b> for the electrolysis plant		<b>More land is needed</b> if roads, pipelines, ports, and desalination plants are not already built

*SOMO calculations based on: PtX-Hub (2024a), PtX-Hub (2024b), IRENA (2021a), IRENA (2021b), Srdjan M. Bulatovic (2010)*

## The structure of the green hydrogen sector

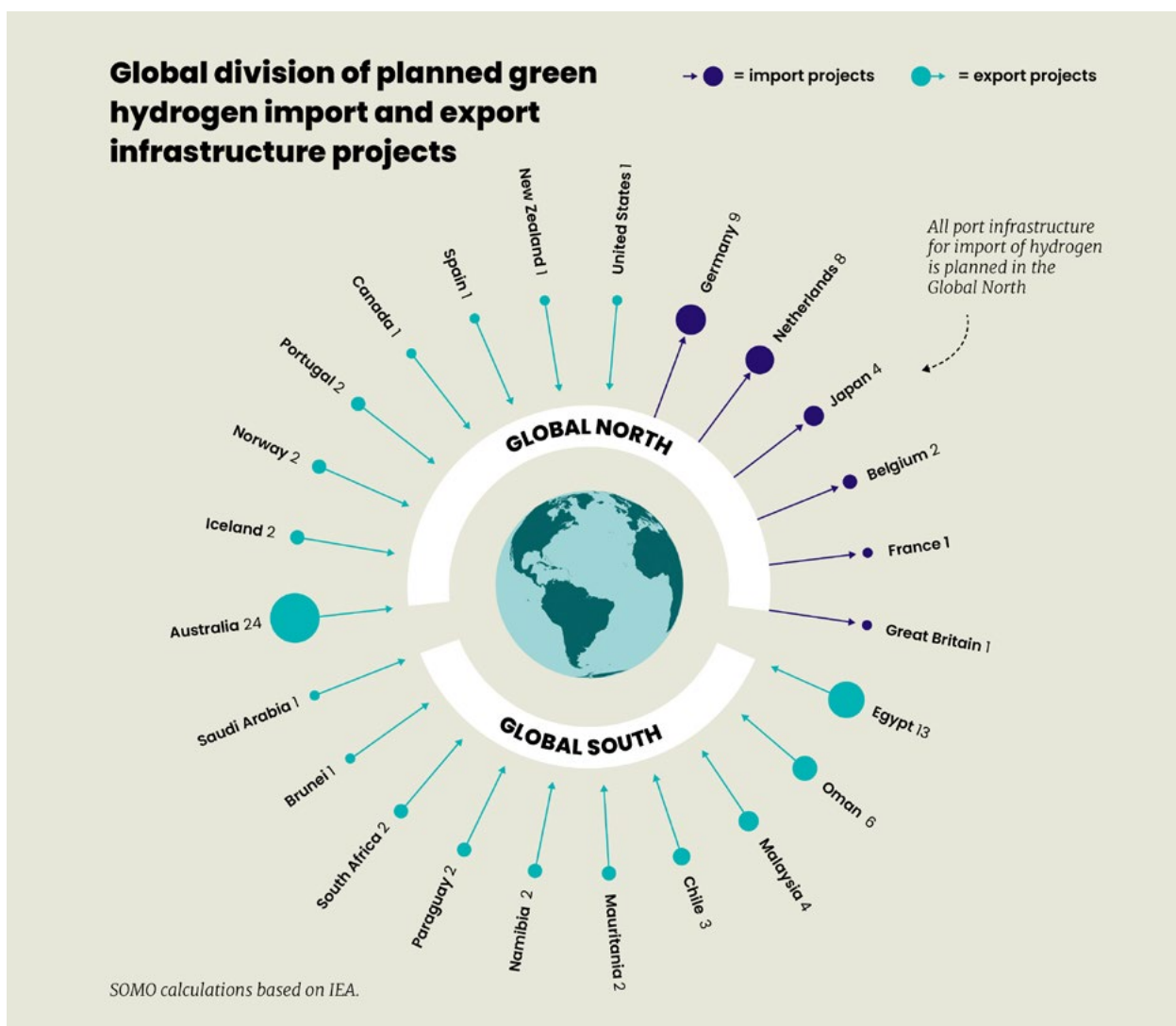
While still at a relatively early development stage, the green hydrogen sector is likely to expand at an accelerated pace. This is largely due to the support of key Global North governments for this energy technology, fostered by heavy industry promotion. Advocates see green hydrogen as enabling a continued focus on economic growth and offering opportunities to entrench the economic advantage of wealthy countries and investors.

The EU provides an example of how the sector is evolving. Green hydrogen is a key element in the EU's energy and decarbonisation plans.<sup>6</sup> The bloc has put in place a raft of policies and incentives to secure access to and control over the resources it needs to generate green hydrogen. This enabling framework includes the REPowerEU policy, which outlines EU plans for hydrogen production and imports. Green hydrogen is further promoted in the 2023 Renewable Energy Directive<sup>7</sup> and the Delegated Acts on renewable hydrogen rules.<sup>8</sup> Additionally, a competitive bidding funding tool,<sup>9</sup> launched in November 2023 and financed by the Innovation Fund, is designed to support renewable hydrogen projects.<sup>10</sup>

Europe’s interest in green hydrogen is not limited to its climate policies and the reduction of CO2 emissions. Policy documents frequently refer to ensuring energy security and gaining independence from Russian gas.<sup>11</sup> Moreover, like many other countries around the world, the EU and its member states seek to boost their economies and become leaders in hydrogen technology.

By 2023, 40 states, half of them European, had developed national hydrogen strategies.<sup>12</sup> The EU’s plans include green hydrogen production but depend substantially on imports. The REPowerEU Strategy of 2022 set out the aim of producing 10 million tonnes and importing 10 million tonnes by 2030.<sup>13</sup> EU member states have engaged in so-called ‘hydrogen diplomacy’ with countries in the Global South that can supply raw materials or make green hydrogen for export to Europe.

The EU’s import plans are accompanied by significant infrastructure development. For example, Germany plans to initiate nine projects aimed at importing green hydrogen.<sup>14</sup> The Netherlands is also investing heavily in its import capacity (discussed in Chapter 3). The plans for import and export capacity globally tell their own story. While none of the import infrastructure is planned in countries in the Global South, more than half the export infrastructure is expected to be in countries in Africa, Asia, and Latin America (see below).<sup>15</sup>



Alongside port infrastructure development, across the continent, governments and investors are collaborating to link up green hydrogen import and delivery infrastructure. The European Hydrogen Backbone (EHB) initiative, for example, comprises 33 energy infrastructure operators. It “aims to accelerate Europe’s decarbonisation journey by defining the critical role of hydrogen infrastructure – based on existing and new pipelines – in enabling the development of a competitive, liquid, pan-European renewable and low-carbon hydrogen market”.<sup>16</sup>

Additionally, the spatial distribution of value addition along the green hydrogen value chain exposes how far the green hydrogen model replicates the history of extractivism and transfer of resources and wealth from the Global South to the North. Europe will not only import green hydrogen but also manufacture the necessary equipment, including the required technology, within the continent. For this reason, the European Commission has established the European Hydrogen Bank, a financing instrument with both a domestic focus to scale up the hydrogen production market and an international pillar to attract imports of renewable hydrogen into the EU market.<sup>17</sup>

Despite repeated rhetoric on the importance of a just energy transition, the structure of the green hydrogen industry is reproducing much of the historical economic inequality entrenched during colonialism.



# The corporate promotion of green hydrogen

While countries play a significant role in promoting and encouraging green hydrogen, the role of industry in championing the growth of this sector is important and has shaped the policies of governments.

Decarbonisation has long been an existential threat to the oil and gas industry, leading it to oppose hydrogen developments for a long time. However, the fossil fuel industry's interest in hydrogen changed with the introduction of carbon capture, utilisation, and storage (CCUS) technologies. Hydrogen became an exit strategy to sustain the use of fossil fuels.<sup>18</sup> It would allow producers to continue exploiting fossil fuel reserves, and gas operators to maintain their infrastructure.<sup>19</sup>

Oil and gas companies now play a significant role in establishing, financing, and operating hydrogen partnerships, as do industries with high dependency on oil and gas. The importance of hydrogen to the oil and gas industry and to industries with heavy dependency on oil and gas is clear in the structure of the lobby organisations that advocate hydrogen policies and funding.

The **Hydrogen Council**, the world's most prominent hydrogen industry group, is led by powerful companies in the oil and gas industry (such as BP, ExxonMobil, Shell, and TotalEnergies), chemical companies (like Air Liquide, Air Products, Chemours, and Sasol), and automotive companies (such as BMW Group, GM, Hyundai, and Toyota). Companies headquartered in the EU, the UK, the US, China, and Japan dominate the list.<sup>20</sup> According to the Hydrogen Council, its members "represent \$9 trillion in market capitalization, 6.8 million in FTEs, and some \$6.4 trillion in revenues".<sup>21</sup>

**Hydrogen Europe** is a hydrogen and fuel cells industry group. Hydrogen Europe has more than 600 members, with more than half of them being industry corporates. The majority of members are situated in Europe, with Germany, France, and the Netherlands the most prominent countries.<sup>22</sup> Hydrogen Europe has direct influence on European policy debates. Alongside the European Commission, it is part of the public-private Clean Hydrogen Partnership, which gives members of this industry group privileged access to important decision-making spaces.

Both the Hydrogen Council and Hydrogen Europe are members of the **European Clean Hydrogen Alliance**, an industry group supporting the deployment of global hydrogen valleys or hubs. Over 80 per cent of its members are corporations or public-private partnerships. Once again, fossil fuel companies such as BP, ExxonMobil, Shell, and TotalEnergies are among its members.<sup>23</sup>

The **European Hydrogen Backbone** initiative is a coalition that advocates repurposing the current European fossil gas network into Europe's future 'Hydrogen Backbone'. It consists mainly of energy infrastructure operators.<sup>24</sup>

**H2Global** is a public funding scheme designed to promote the importation of green hydrogen. It is a collaboration between the German and Dutch governments and the Bezos foundations. Donors include companies such as ArcelorMittal, BP, ENGIE, Gasunie, Port of Antwerp-Bruges, Port of Rotterdam, RWE, Sasol, Shell, and TotalEnergies.

In 2021, the European Commission established the **Industrial Carbon Management (ICM) Forum** to formulate policy proposals on carbon capture, utilisation, and storage. As Corporate Europe Observatory notes, the fossil fuel industry or organisations with links to it co-chair each of the forum's working groups. The European Commission's Industrial Carbon Management Strategy directly mirrors the recommendations of these working groups.<sup>25</sup>

# 3. The Netherlands

**The Netherlands has set itself up as an EU and global champion of the development of green hydrogen and a green hydrogen economy.**

According to the Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland), a government body: “in addition to developing a Dutch hydrogen ecosystem and value chain, the Netherlands strives to help accelerate the global, large-scale adoption of hydrogen as a carbon-neutral energy carrier”. **The agency is explicit about the scope of Dutch aspiration extending to the entire global value chain.**<sup>26</sup>

This ambition is reflected in the Government Strategy on Hydrogen published in April 2020. This includes plans to scale up domestic production and significantly scale up imports. Dutch plans include substantial investment in domestic infrastructure development. For example, the Port of Rotterdam expects to increase its hydrogen imports from a planned 4 million tonnes in 2030 to 18 million tonnes by 2050 to meet domestic needs and cover 25 per cent of Europe's predicted future demand.<sup>27</sup>

The government strategy notes that "Hydrogen has the potential to become a globally traded commodity. Given the significant expected demand for sustainable hydrogen in industry in Northwest Europe, it would therefore be highly advantageous for the Netherlands to become the linchpin in that supply chain and to use existing infrastructure for that purpose."<sup>28</sup> According to the government plans, the forthcoming period up to 2030 is when it expects a major scaling up of the sector.<sup>29</sup>

The Netherlands' aspiration is to be Europe's green hydrogen hub, making, importing, and distributing the fuel. This ambition comes with substantial policy work, foreign policy engagement, and investment of public money. The Dutch government has allocated EUR 8 billion from the Climate Fund for this purpose.<sup>30</sup> Dutch funding and promotion play a key role in efforts to ensure Europe has an advantage in the green hydrogen value chain. Dutch funding will help create new markets for European industries and enable Europe to compete with emerging production and supply chains elsewhere.<sup>31</sup>

While setting out ambitious plans for development of the sector, neither the government strategy document nor the business-oriented output of the Enterprise Agency refers to resources in the Global South. Much is made of Dutch wind power capacity to make green hydrogen, but there is almost no reference to the solar and wind power or metals that will be used in the Global South to produce the green hydrogen for export to meet Dutch plans to be an import hub.

Although the core strategy documents barely reference the role of inputs from the Global South, the Netherlands has engaged in 'hydrogen diplomacy' with countries in the South that can supply raw materials or make green hydrogen for export.

The bilateral agreement with South Africa is an example. It includes a commitment to jointly promote public and private investment in green hydrogen projects, thereby creating new opportunities for companies and industry and supporting private-sector networks in accelerating the implementation of both countries' green hydrogen strategies. In contrast, South Africa's hydrogen strategy is primarily export oriented, with much less emphasis on the domestic market.<sup>32</sup>

For example, the country has signed a Memorandum of Agreement with the Port of Rotterdam, to act as a "demand aggregator for green hydrogen in Europe"<sup>33</sup> and there are eight import projects are planned in the Netherlands, while South Africa has two export projects in the pipeline. The Dutch companies Port of Rotterdam and Koninklijke Vopak NV are developing one of these projects, Boegoebaai Port in Northern Cape province.<sup>34</sup> This model of finding business opportunities for Dutch business, and focusing on export of energy from South to North, is unchanged from the fossil fuel era.



## **Energy distribution infrastructure: the challenge for equality of access**

As noted above, the EU and Netherlands are investing in substantial infrastructure to make, import, and – critically – deliver hydrogen to users. This includes the European Hydrogen Backbone (EHB) initiative.

According to the Dutch hydrogen strategy: “the government intends to play a key role in the development of the hydrogen infrastructure. ... the government will review whether and under which conditions part of the gas grid can be used for the transport and distribution of hydrogen. The regional network operators and network companies will be involved in this process.”<sup>35</sup>

The strategy document makes clear the importance of both storage and distribution infrastructure, and the extent of government support for this, including to companies.

Meanwhile one of the major obstacles to access to clean, renewable energy in many Global South countries is the lack of investment in similar infrastructure. For example, South Africa, which has abundant solar and wind power potential and platinum, has acknowledged that for the domestic use of hydrogen (as opposed to export) infrastructure is the challenge.

EU countries can subsidise their industries in ways most countries in the Global South cannot. As the energy transition progresses, the different levels of investment and subsidies provided to enable populations to access energy require greater scrutiny.

## **Feminist foreign policy and the energy transition**

The Dutch government has made a public commitment to a feminist foreign policy across all areas of foreign policy.<sup>36</sup> The government has also expended considerable energy on engaging in foreign policy in support of Dutch energy transition goals. In the Dutch natural resources strategy, the government emphasizes the need to address adverse human rights and environmental impacts, with special attention to the gender-specific impacts arising from mining of minerals and metals.<sup>37</sup> However, there is no evidence of alignment between the feminist foreign policy, on the one hand, and foreign policy in relation to the energy transition, on the other.

Take, for example, the government’s approach to promoting the production and export of green hydrogen globally. Given the resources needed to produce hydrogen, and the vital role of access to energy in supporting women’s work and empowerment, the absence of a clear link between Dutch energy transition policy and the government’s commitment to women’s rights is notable and should be remedied.

# 4. The reality: case study of Mokopane, South Africa

As noted above, **the production of green hydrogen includes a need for minerals such as platinum.** South Africa possesses over 90 per cent of known global platinum group metal (PGM) reserves.<sup>38</sup> In 2021, the South African government launched its Hydrogen Society Roadmap. Among other projects, the roadmap details the Green Hydrogen Valley initiative, a collaboration between the government and private partners, focusing on a hydrogen production corridor from Limpopo to Durban.<sup>39</sup> **Crucial to this is the world's largest open-pit platinum mine: the Mogalakwena mine in Limpopo, wholly owned by the UK mining conglomerate Anglo American through its subsidiary Anglo American Platinum.**

Demand for PGMs had decreased due to the rise of electric vehicles, which unlike internal combustion vehicles do not require the metal for catalytic converters to clean exhaust fumes.<sup>40</sup> With green hydrogen, South Africa and Anglo American have found a new market for their PGMs. EU policy has played a role in shoring up demand for platinum. In its 2022 annual report, Anglo American points to REPowerEU as an important indicator of the potential demand for hydrogen.<sup>41</sup>

Following the development of the Green Hydrogen Valley initiative, in which Anglo American was a participant, the company announced in 2022 that it is planning to work with others to build a hydrogen production, storage, and refuelling complex at Mogalakwena that incorporates the largest electrolyser in Africa and a solar plant. The company also unveiled a prototype of the world's largest hydrogen-powered mine haul truck.<sup>42</sup> Mogalakwena will become both a mine and a hydrogen production site.



**The location of  
Anglo American's  
Mogalakwena  
platinum mine.**



While governments and companies see a positive future for hydrogen, communities around mine sites face a very different reality. The communities of Mokopane live beside the Mogalakwena mine. Since its discovery in the 1920s, platinum extraction in Mokopane has significantly impacted on the area in terms of increasing poverty and food insecurity, limited access to water and to land, and environmental degradation.<sup>43</sup>

Today, for the communities of Mokopane, little has changed. On the contrary, the development of green hydrogen risks exacerbating the negative impacts.

## Water scarcity

One of the most pressing issues the communities face is water scarcity. This has worsened to a point where consuming contaminated water has become the norm.<sup>44</sup>

According to the World Resources Institute's online Water Risk Atlas, the arid Mokopane area faces extremely high overall water risk, including indicators such as drought risk, lack of drinking water, and inadequate sanitation.<sup>45</sup>

This issue has been persistent and well documented over the years. Reports from ActionAid in 2008 and research by MACUA in 2016 have indicated that mining activities are the main cause of water problems in the area, in addition to service delivery deficiencies and infrastructure degradation.<sup>46</sup> The community has had to invest in water storage solutions and procure water from private providers.



**"Dust fills my house and my house is falling apart. The place I call home feels damaged but I have nowhere else to go"**

**Dinah Mashaba**  
Mapela Skimming, Limpopo.



Anglo American recognises it operates in water-stressed areas, particularly in the Limpopo region.<sup>47</sup> The company anticipates the demand for hydrogen will reach 40 kilotons by 2030.<sup>48</sup> Based on the previous analysis, this would require 360 million litres of freshwater per year. In this dry region, where access to water is limited, this poses significant risks.

In 2024, MACUA worked with the communities to carry out a social audit at Mokopane, focused on Anglo American's Social and Labour Plan 2021–2025<sup>49</sup> (see Box Social and labour plans) for the Mogalakwena mine. The plan includes “a project to provide clean and sustainable water to local people in Mapela and Mokopane”.<sup>50</sup> Anglo's water plans, however, do not appear to have had much positive impact. More than half the social audit respondents were unaware of the mine's commitments to improve the water supply and had not seen any improvement.

The audit also revealed that one-third of respondents do not have access to clean water. Communities reported that they have experienced a decrease in water access in recent years and are concerned this will worsen as a result of the water-intensive production of green hydrogen.<sup>51</sup>

### **Social and labour plans**

The history of mining in South Africa is inextricably linked to colonialism, apartheid, and racism. Following the end of the apartheid regime, the South African government implemented policies aimed at addressing historical injustice. Social and labour plans (SLPs) were established in the mining sector in this context.

SLPs are legally binding documents based on South Africa's Mineral and Petroleum Resources Development Act. They require mining companies to put in place plans, developed with communities, workers, and local authorities, to advance the wellbeing of mine-affected communities and the workforce, including migrant workers.

However, research has repeatedly exposed how mining companies fail to comply adequately with SLPs and the weaknesses of often under-resourced regulators in enforcing the plans.

The water scarcity that communities in Mokopane face occur in the context of historical inequalities. During apartheid, the authorities systematically manipulated access to water, denying Black communities adequate and safe supplies. The regime's policies ensured a disproportionate allocation of resources, facilitating reliable water access in predominantly White areas and to the mining industry, while leaving marginalised Black communities with insufficient infrastructure and services.

In contemporary South Africa, mining corporations continue to reinforce these inequalities. They divert and pollute local water sources, exacerbating water scarcity in communities already struggling for access. Mines consume significant amounts of water for their operations, often at the expense of local populations who face increasing shortages.<sup>52</sup>

The situation in areas like Mokopane illustrates this continuing struggle. Marginalised and often previously disadvantaged communities surrounding mines not only contend with environmental degradation but are also deprived of their fundamental right to water. The lack of meaningful consultation or compensation for such communities echoes apartheid-era practices.

## Access to energy

While producers increasingly use PGMs to make green hydrogen for the European energy market, communities around the Mogalakwena mine face energy poverty. One-third of respondents in MACUA's social audit reported a lack of access to energy. The community relies on wood, paraffin, and electricity, indicating both grid-based and off-grid sources. However, the main obstacles community members face in obtaining electricity for their homes are its high cost and the physical distance to infrastructure.

Despite Anglo American's plans to build a large solar plant, the energy-related projects included in the company's SLP are limited to solar streetlights and electricity meters. These interventions, while somewhat helpful, do not go far enough in addressing the broader energy needs of the community.

Community members have expressed a desire for more impactful and sustainable solutions. Many would like to see Anglo American invest in renewable energy projects that directly benefit local households, such as off-grid solar power systems, which could significantly reduce dependence on costly and polluting paraffin and wood. They also advocate improved access to affordable grid electricity, with subsidies or pricing models tailored to low-income households. Additionally, people have voiced the need for infrastructure development that brings energy closer to the more remote areas of the community, easing the burden of distance.

These demands highlight the gap between corporate commitments to energy innovation for export markets and the urgent energy needs of mining-affected communities.

## Lack of consultation

The gap between the claims Anglo American makes in its Social and Labour Plan and communities' experience raises questions about the basis for the SLP. Although Anglo American claims to have consulted communities and other stakeholders,<sup>53</sup> the majority of social audit respondents (71 per cent) stated that community priorities are rarely taken into account and the community is not involved in decision-making processes related to the mine's operations.<sup>54</sup>

In 2024, MACUA held a meeting where community members spoke out about the lack of consultation and of equitable benefit distribution in Mokopane's green hydrogen project. The mine's lack of regard for genuine community consultation was particularly evident in its operations to accommodate its new green hydrogen ambitions. To achieve its goal, the mine removed graves of some community members. For this harm, a number of community members say they were compensated with sums ranging from ZAR 2,000 to 15,000 (approx. EUR 105 to 785), while others state they were never consulted at all.

Anglo American’s failure to fulfil commitments outlined in its SLP exacerbates community frustration as infrastructure and clean water projects remain unrealised. Community members informed MACUA how they feel left in the dark, unsure of where to turn for information or how to address their grievances.

There is a stark contrast between public claims about the benefits of green hydrogen and the lived reality of communities around mine sites like Mogalakwena. Policy-makers and companies driving the hydrogen transition must address this if there is to be any reality to the rhetoric of a just energy transition.

## Women’s rights and gender equality

Many community members are deeply concerned about the continuing issues surrounding the Mogalakwena mine and the recent push for green hydrogen development. And for women, these challenges are even greater. Despite this, the social audit found women were largely excluded from decision-making processes. A significant portion of respondents (71 per cent) stated that women had not been invited to consultations about the SLP or other key developments. A female community member observed:

*“The men always get invited to these meetings, but we women are left out. Our voices and concerns are not being heard.”*



Photo: Senthathi Katlego Zasekhaya

Furthermore, 74 per cent of the respondents indicated that women are further excluded from participating in the consultations carried out by the government as it regards integrated development plans (IDP). This is particularly concerning if we take into account that mining companies often align their SLPs to the uninformed IDPs and require the assent of the Municipality to submit their SLPs to the Department of Mineral Resources.

Such layers of exclusion entrench and perpetuate gender inequalities and undoubtedly contribute to the other challenges women face around the mine. If women's voices are not heard, the issues they face will not be addressed, as the social audit also found.

For example, in mining-affected areas like Mokopane, where MACUA is active, women are central as food producers and caregivers. When mining operations expand, women often bear a heavier burden of social, economic, and environmental risk. Water scarcity, a serious issue in Mokopane, is one example: women are typically responsible for finding and purchasing water for their families. There are real concerns that Anglo American's hydrogen plans will exacerbate current water scarcity and that this will negatively impact on women's work and health and the health of children and others for whom women are usually the primary caregivers.

When it comes to the few benefits mining brings, women also face challenges. Community members report that they struggle to provide for their families due to lack of access to meaningful employment opportunities. The limited jobs that exist are more often available mainly or only for men. As one woman shared in the social audit process:

***“I applied several times but was never even called for an interview. It feels like they only want to hire men.”***

Mining regions often experience increased rates of gender-based violence because of the influx of labourers and the breakdown of community structures. In numerous contexts, women report higher incidences of violence, harassment, and insecurity linked to mining activities.<sup>55</sup>

The intended roadmap for Anglo American Platinum's gender-based violence (GBV) initiative, as outlined by Reos Partners, spans three years and aims to create systemic changes across Anglo's 11 operational sites in southern Africa. The initiative began in 2022 with a commitment to address GBV through a leader-led, integrated approach.<sup>56</sup> Despite the activities the GBV initiative describes, none of the women interviewed in MACUA's social audit were aware of any such efforts, highlighting a significant gap in communication and engagement with women in the community.

This lack of awareness further underscores the exclusion of women from decision-making processes in mining-affected communities like Mokopane, where their voices are often marginalised.

The disconnect between corporate strategies and the lived experiences of women in the community reflects a broader failure to integrate the perspectives and needs of people most affected by mining operations. The gendered impacts of mining – includ-



ing increased rates of GBV, economic disempowerment, and environmental degradation – remain effectively unaddressed. While Anglo American Platinum’s efforts may be commendable on paper, they have failed to penetrate to community level, especially among women.

**“We are forced to date miners for survival, but we dream of independence, of owning our future.”**

Rachel Mashitiso  
Tshamahansi, Mokopane.



Photo: Senthathi Katlego Zasekhaya

# 5. Conclusion: replicating an exploitative model

The major promoters of green hydrogen, such as **the EU and the fossil fuel and energy-intensive industries**, are replicating the framework that has long characterised fossil energy and extractive sectors globally. This involves **countries in the Global South acting primarily as sources of raw materials for use in the Global North**. This is evident in the emerging structure of the hydrogen industry and associated infrastructure.



The model for green hydrogen replicates the model of the fossil fuel era. The focus of the green energy transition is on extraction of resources from one part of the world to enable consumption in another. The **extractivist logic** that has driven the climate crisis remains unchanged in Europe's green hydrogen and renewable energy policies.

Despite political rhetoric about 'win-win' relationships between EU member states and Global South countries over green hydrogen, the core of Europe's policy is to foster and maintain **dependency relationships**. Countries with needed resources are expected to export them, frequently as raw materials, or with limited value addition.

The energy transition is inextricably linked to the quest for economic dominance. Europe, the US and China are engaged in a competitive race to 'win' the green transition and ensure they, and their industries and companies, come out on top, controlling technologies like green hydrogen. They start out with massive advantages compared with most other countries, and their competitive approaches undermine the prospects of green economic development elsewhere in the world.

Holding deeply entrenched economic power built on the profound historical injustices of colonialism, the EU has given its industries a massive boost through legislation and frameworks such as the 2023 Green Deal Industrial Plan.<sup>57</sup> This framework provides subsidies and other state support for green hydrogen.

As this report has shown, when it comes to the energy transition, and green hydrogen specifically, the deck is stacked in favour of the world's wealthy countries.

Additionally, 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. The impacts of these industries on local resources, particularly water, have only deepened long-standing inequalities rooted in apartheid and colonialism.

Addressing the complex needs of Mokopane's residents, especially women, requires more than superficial commitments. It demands that policy-makers and mining companies engage deeply with affected communities, prioritise local concerns over external economic interests, and uphold their right to participate in decisions shaping their future. Without such efforts, the promises of green hydrogen and a just energy transition will continue to ring hollow, offering little relief or benefit to those who endure the heaviest burdens of extractive practices.

As the Global North transitions out of fossil fuels, it needs to commit deeply to economic decolonisation and financial reparations for historical injustices. For the EU to realise a truly just energy transition, its green hydrogen policies must go beyond economic growth and prioritise communities and sustainable practices instead. This requires reducing energy and resource consumption, centring communities in decision-making processes, and breaking away from extractive, exploitative models.

Only by addressing these key areas can the EU foster a green hydrogen transition that is effective, just, inclusive, and genuinely sustainable.

# 6.

# Recommendations

We make the following recommendations for Global North governments and companies involved in mining and green hydrogen projects to address the global climate crisis justly and without leaving anyone behind (that is, lacking in resources, water, energy, voice, or decent livelihoods).<sup>58</sup>

## For Global North governments

Governments in the Global North must move away from funding and supporting extractivist models that exploit countries and their communities in the Global South for their own benefit only. They should redesign funding structures to truly realise fair benefits and opportunities for all parties involved.

Ensure that policy frameworks for green hydrogen are gender responsive and inclusive of communities in all their diversity. This includes fully reflecting commitments to gender equality and feminist foreign policy in green hydrogen foreign policy interventions.

Hold energy companies accountable for human rights abuses and environmental damage through legally binding state-based and international regulations. Prevent companies from continuing to repeat the same exploitative patterns without consequences, thereby ensuring marginalised communities and countries no longer carry the negative consequences of these corporate actions.

## For companies involved in mining and green hydrogen projects

Engage in thorough and meaningful consultations with host communities, reflecting their full diversity and aligned with the Tenets of MACUA's People's Mining Charter.<sup>59</sup>

Prioritise the voices of women, youth, and other marginalised groups in decisions regarding project planning, impacts, and benefits.

By fostering truly participatory and informed decision-making, companies can better understand and address the community-defined needs essential for equitable development.



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# Colophon

## Hyped hydrogen Hidden harm

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### SOMO

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ActionAid Netherlands is a women's rights organisation working for a just world with a fair economy and a liveable environment. With our inclusive approach, and together with women in the Global South, we fight to strengthen the position of women worldwide.

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### MACUA/WAMUA

Founded in 2012, Mining Affected Communities United in Action (MACUA) aims to transform South Africa's mining sector by advocating for a people-centred approach that seeks to end the historical exploitation and colonial dispossession of land and minerals. MACUA's campaigns and projects aim to amplify the voices of communities affected by mining, who are often excluded from decision-making processes related to licensing and the distribution of wealth generated by the sector.

The need to address gender issues in the mining sector has been evident since MACUA's first meeting in 2012. It was recognised that the distribution of risks, costs, and benefits in mining disproportionately affects women leading to the establishment of 'Women affected by Mining United in Action' (WAMUA). WAMUA's objective is to empower women in mining-affected communities, building their ability to exert influence and actively participate in shaping and determining their own developmental trajectories.

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