

POLICY BRIEF

The Global Just Energy Transition

A successful transition is a *humanised transition*

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SUMMARY

The just energy transition (JET) is a global commitment to defund fossil fuels and reach Net Zero by 2050, in a way that reduces inequalities, protects those most affected by the shift, and 'leaves no one behind'. Embarking on the JET is imperative, not only to combat climate change and its devastating consequences, but also to accommodate the increased demands in water, energy, and food from a rising global population.

Informed by over 20 years of research and advisory services in the field of climate change, energy, and natural resources, OneWorld has identified four interrelated and necessary conditions that must be in place to enable a successful and sustainable JET.

Governments globally could leapfrog the lessons learned to enhance their national climate and development action plans, which inspires the creation of this policy brief. Understanding these critical conditions allows countries to assess their current position on the journey towards a just transition and pinpoint areas requiring targeted focus for policymakers and funders going forward.

POLICY RECOMMENDATIONS

- 1. Implement measures that protect the most vulnerable populations from the costs of the transition.** This includes providing support for workers transitioning from fossil fuel to renewable energy industries by investing in green education and skills development programmes and government grants for the unemployed.
- 2. Implement strong public-private partnerships** to ensure universal delivery and affordability of clean energy, especially in regions with high energy poverty rates.
- 3. Support decentralisation efforts and promote social ownership** in energy generation and distribution, fostering competition, transparency, social equity, and community engagement.
- 4. Address the interrelated challenges of water scarcity, energy supply, and food security** through integrated policies and resource management strategies.
- 5. Invest in sustainable agricultural practices and technologies** to mitigate the impacts of climate change on food production and global value chains.
- 6. Accelerate the development and deployment of renewable energy technologies** to ensure energy security in the face of growing energy demands while minimising environmental degradation, health risks, and addressing intermittency challenges through advancements in battery storage technology.

INTRODUCTION

The urgency to address climate change gained global attention with the adoption of the Kyoto Protocol in 1997, superseded by the Paris Agreement in 2015. These agreements aim to mitigate greenhouse gas emissions, with the Paris Agreement seeking to limit global temperature rise to 1.5 degrees Celsius above pre-industrial levels by reducing emissions by 43% by 2030 (compared to 2019 levels) and achieving net-zero emissions by 2050 (UNFCCC, n.d. a & b).

Countries around the world have united around these global climate diplomacy instruments and goals, given the severe consequences of rising temperatures for people and the natural environment.

More frequent and extreme weather events such as droughts, heatwaves, and floods can have several and cumulative impacts for lives and livelihoods, contributing to water scarcity, crop failures and poor health, and damaging infrastructure. The growing global population's increased demand for water, food, and energy, and the pace of urbanisation, are exacerbating the climate crisis. Vulnerable sections of the population are more affected by climate change-related hazards, including women, children, the elderly, and disabled individuals. There are more indirect impacts as well: The International Labour Organisation projects that high temperatures and heat stress will result in the loss of 2.2 per cent of total working hours worldwide – a productivity loss equivalent to 80 million full-time jobs (ILO, 2019). Poorer countries, lacking resources, are disproportionately affected. Ironically, 600 million Africans lack access to basic electricity, the use of which in most global regions is a primary driver of global warming.

Transitioning to renewable and other clean energy sources – such as coal coupled with carbon capture and storage, or nuclear – is the only way to combat climate change at scale and to achieve the United Nations' Sustainable Development Goals (SDGs) related to energy access, sustainable cities, biodiversity, and social equity (United Nations, 2015). Decentralised energy can play a major role in addressing both the climate crisis and energy poverty in developing regions such as Africa and Asia.

THE CRITICAL CONDITIONS FOR A SUCCESSFUL ENERGY TRANSITION

Experience of energy transitions around the world has highlighted four conditions that must be in place to enable a successful and equitable energy transition, namely:

- a. A focus on the “just” aspect of the transition, or the principle of leaving no one behind;
- b. Decentralisation of energy distribution and generation from the traditional form of a vertical monopoly, through public-private sector collaboration;
- c. Implementing a context specific water-energy-food (WEF) nexus approach, to ensure that the co-benefits emanating from essential sectors flow to where they are needed most; and
- d. Adoption and development of clean and sustainable energy sources and infrastructures.

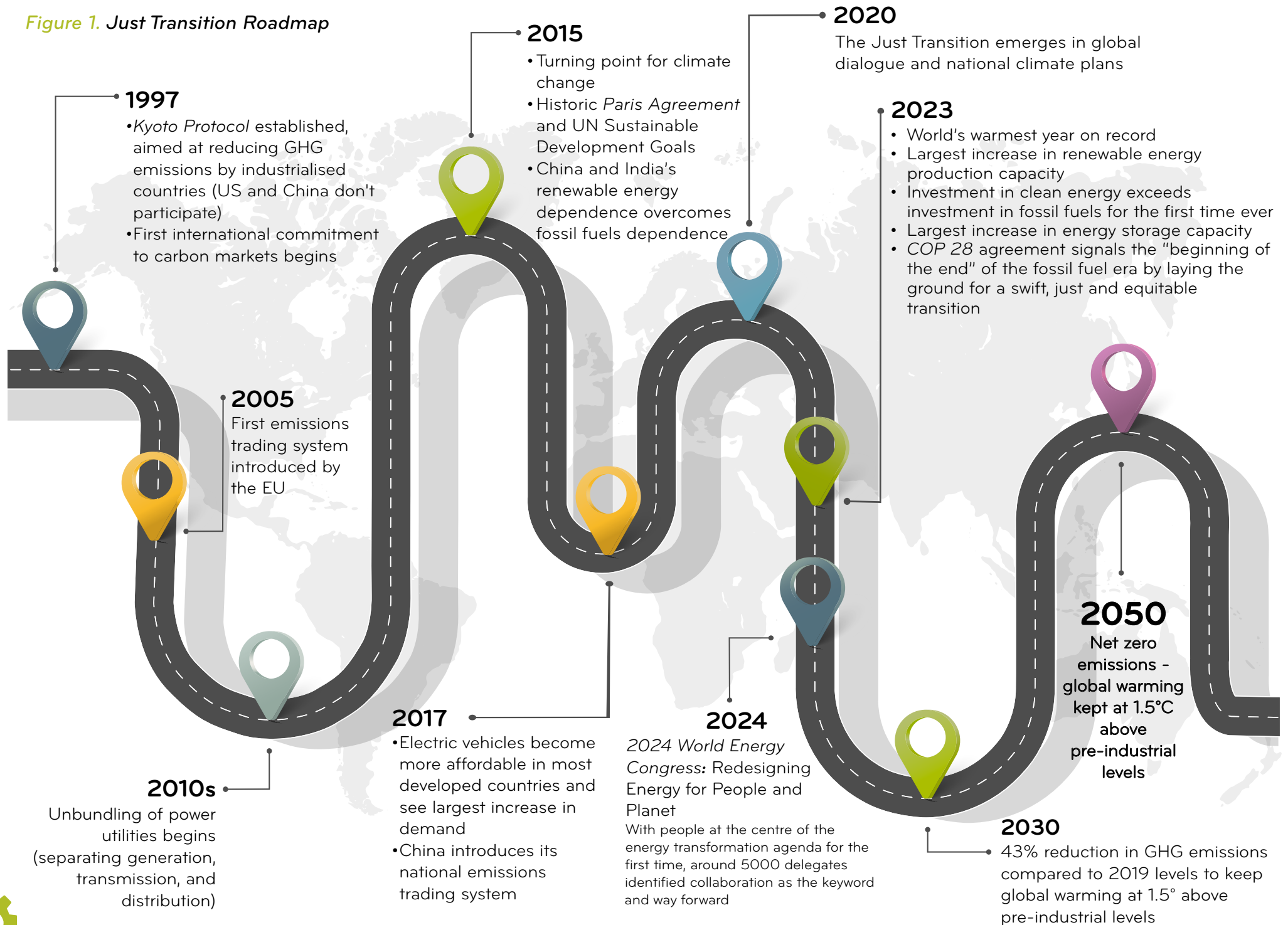
A JUST TRANSITION

An energy transition that looks at global sustainable development must ensure that no one is left behind. This principle is fundamental to reducing inequalities and mitigating political conflicts related to climate change and natural resources, increasing energy security, and ensuring equal and affordable access to clean energy. Equitable access and affordability, social ownership, and reintegration of job losses from the fossil fuel industry are critical points to achieve a just transition.

Lack of access to clean electricity affects 760 million people globally, whilst 2.3 billion people lack access to clean cooking fuels. Most of these people live in Sub-Saharan Africa (IEA, 2023). Energy poverty, or the lack of financial means to consume sufficient levels of clean energy for the sustenance of life, is of grave concern. In the last decade, renewable energies have become more cost-efficient compared to fossil fuels, thanks to the increased scale of production, low operational costs, increased generation efficiency, and less price volatility (IRENA, 2021; IRENA 2024).

However, household utility bills are increasing, while strong public-private partnerships are necessary to ensure universal delivery and cross-subsidisation for indigent households. This is especially true in countries with minimal regulation and where renewable energy production is controlled by the private sector, while distribution is in the hands of the government.

Figure 1. Just Transition Roadmap



In addition, *energy security* is still a problem. In some developing countries, planned power cuts due to insufficient availability of electricity are common, whilst globally, geopolitical or natural shocks lead to global supply chain disruptions. Energy security can be strengthened by decreasing the reliance on fossil fuels like gas, crude oil and coal, where a few countries dominate global supply, whilst developing more local capacity by exploiting local renewable resources. By not relying on often volatile global supply chains related to fossil fuels, but instead promoting local renewable energy or other clean energy production – coupled with effective storage solutions – countries will be able to ensure their populations have consistent, reliable access to energy.

Costa Rica dominates the climate action landscape by being one of the most sustainable countries in the world based on policies and action, net zero target, land use and forestry. Over 98% of its energy supply has steadily come from renewables since 2015, mostly from hydropower. Costa Rica continues investing in energy generation and storage capacity, and liberalising the market to include small producers (Climate Action Tracker, 2023).

Limiting disruptions to the JET process requires confronting vested interests – especially among the well-established fossil fuel-based companies. It may even be necessary to consider compensating them, in the same way the British government enabled its decision to end a centuries' old slave trade through the enactment of the Slavery Abolition Act of 1833 (Manjapra, 2019)¹. The government ultimately compensated those that stood to lose as a result of the Act's implementation – including slave owners and slave trade companies more broadly. Such a strategy, while seemingly unpalatable, cannot be ruled out if we are to reach the pace of change necessary to mitigate the worst impacts of global warming and climate change.

Furthermore, job losses from the defunding of fossil fuels present a major challenge to equality. Localised studies must be conducted to analyse expected job losses per education and income level, per industry, per geographical location, and so on. Skills demand in the fossil fuel industry is decreasing worldwide. While demand for green skills is rising and creating many job opportunities, governments must invest in education as well as skills development programmes to facilitate the transition across industries. High- and middle-skilled workers will more easily shift, especially with proper skills development, whereas low-skilled, and, some middle-skilled workers, will more likely stay unemployed and in need government of grants to support income losses (IRENA & ILO, 2023).

¹ As part of the strategy to pass the Slavery Abolition Act in 1833 – effectively ending slavery in Britain and across her territories – the British government took out a loan of 15 million pounds (around 200 billion in today's money) to compensate slave owners and their related beneficiaries for their expected losses as a result of the Act's implementation. This loan was only repaid in February 2015.

Education programmes should target children from a young age, enabling and encouraging careers in the energy sector of the future. Funds must also be directed to the repurposing of mines, factories, and old power plants. These are all critical facets of any *just* energy transition.

DECENTRALISATION

Decentralisation of the energy sector has increasingly been replacing the traditional system of a vertically integrated monopoly.² In the last few decades, ~110 countries globally have unbundled or have started unbundling national utility companies, and decentralising their energy generation, transmission, and distribution (Eberhard, 2019).

The private sector assumes a central role in renewable energy generation in many countries, where independent power producers (IPPs) supply electricity to the national grid, supporting competition. This helps to bring prices down and can increase political transparency. Political transparency is a central factor here and goes hand-in-hand with opening up regulatory environments. An issue that must be addressed however is allocation of costs to strengthen the national grid systems. Grid strengthening is necessary for smooth energy transitions. Countries must guard against giving the private sector a taxpayer funded grid at no cost.

South Africa is a leading example in renewable energy auctions. The Renewable Energy Independent Power Producers Procurement Programme (REI4P) has been contributing to solving the national energy crisis, by bringing new renewable energy onboard since 2015. Total RE capacity is 7090 MW and rising, at prices over four times cheaper than coal-based solutions (IPPPP, 2023).

In some countries, local governments and municipalities have seized the opportunities afforded by renewable energy. On the one hand, they can procure energy directly from IPPs, protecting or even increasing their own revenues, and on the other they can distribute, and cross-subsidise electricity more efficiently based on local needs and characteristics. Strong public-private partnerships are necessary to ensure that energy generated through IPPs is fairly distributed to the whole population by local governments.

Furthermore, small-scale embedded generation presents great opportunities for developing countries to electrify rural communities and informal settlements. Notably in Sub-Saharan Africa where electrification rates are still low (as demonstrated already). However, deployment faces financial and political challenges in

² This traditional system is typically characterised by a fully integrated energy utility owned and/or operated by a single entity. By unbundling this type of utility, risk can be dispersed across the system components. Where one entity is responsible for transmission, and another for distribution (for example), there is far greater room to mitigate system failures, as well as enhance accountability across the energy supply chain.

several countries due to insufficiency in regulatory and financing systems, as well as diverging political interests. To fully leverage the opportunities that embedded generation presents, greater cooperation among the relevant stakeholders is essential (ESI, 2022; IRENA 2018).

Decentralisation can help lift the heavy bureaucratic constraints which often characterise highly centralised systems of governance, and through this, create space for new power producers to enter the market. However, in countries where the private sector is spearheading the integration of renewable energy systems, there are concerns over fairness, and that private sector profits are prioritised over community wellbeing. Social ownership must gain a more central role in new energy generation. Options include construction of renewable energy power plants on community land, and community-owned mini-grids, worker-owned powerplants and embedded generation solutions. This approach will ensure that low-income communities and households are not left behind in the decentralisation process. This highlights the need to develop tailored and sensitive instruments to track these transition effects, and ultimately protect these vulnerable groups.

Again, public-private partnerships (PPPs) must be strengthened to ensure fairness, and localised options must be developed. With government acting in concert with the private sector, coordination will be most effective and equitable distribution of energy resources will be enabled. PPPs can help ensure full-scale engagement across the social partner landscape, as well as more productive and efficient financial flows. PPPs also recognise the enormity of the energy transformation that faces the world. The public sector cannot do this alone, and nor can the private sector. Collaboration is the only way forward.

WEF NEXUS

The WEF nexus is a systematic approach that fundamentally links water, energy and food through a complex arrangement of hydrological, social, biological and technical relationships and interdependencies (IPCC, 2022). WEF systems are essential to human life – without food and water we cannot survive, and in today's world, without energy we are unlikely to access either anyway. Further, WEF systems are uniquely vulnerable to climate impacts. With between 3.3 and 3.6 billion people living in contexts that demonstrate high climate change vulnerability, understanding the linkages between water, energy and food (and how to preserve and protect them) is a useful and necessary strategic approach. While demand for all three is rising rapidly due to an increase in global population, water reserves are being depleted by more severe droughts, the melting of glaciers, and water pollution. *Unlike energy, there is no substitute or alternative for water* (WEF, 2011).

Water scarcity severely impacts agricultural production, which requires high levels of water use to make irrigation possible. Crops are further threatened by climate

change related events, such as more severe and unpredictable droughts, rainfalls, and heatwaves. These events not only impact local supply, but also global value chains. Energy scarcity and supply disruptions are also detrimental to agriculture and livestock farming.

Addressing the resource nexus is closely related to most of the SDGs, particularly SDG 2 for zero hunger, SDG 6 for clean water and sanitation, and SDG 7 for affordable and clean energy (United Nations, 2015). Although the nexus is an evolving concept, the predominance of water, energy and food in the 17 SDGs highlights the need for integrated economic development that is underpinned by the sustainable development, and use, of resources.

The WEF nexus approach necessarily broadens the stakeholder net as it brings together actors from across the water, energy and food sectors. This expanded group allows for a greater number of possible solutions to be co-created, in the absence of the traditional limitation of being restricted to a 'single domain' analysis. Therefore, adopting a nexus approach by acknowledging the interconnectivity of these three sectors, can contribute directly towards a more effective, and inclusive, just energy transition. ***The WEF nexus is a critical accelerator of sustainable growth and is fundamental to humanising energy transformations.***

CLEAN AND SUSTAINABLE ENERGY

The overarching goal of the JET is to create a society that is reliant on clean energy, protecting the natural environment and human health, and ensuring long-term sustainable development; ***with those most impacted by the transition not being left behind.*** Renewable energy resources are abundant and continuously replenished and, by exploiting the geographical landscape, reduce dependence on fossil fuel consumption and the price volatility that comes with their imports. Although one of the main arguments against renewable energies, especially solar and wind, is that they are intermittent sources requiring backup support, the recent improvements in battery storage system technology is already starting to mitigate this issue.

Nuclear power on the other hand, is a historically more contentious issue. While nuclear power plants do not contribute to GHG emissions, they are still prohibitively expensive to construct and maintain (particularly in developing countries). This cost, if not properly managed, can also contribute to the unaffordability of the energy these plants might produce. This can exacerbate energy poverty. Above and beyond this, however, is that nuclear power plants produce highly toxic waste that can never safely re-enter any natural environment.

However, these findings must be understood in their local context. While nuclear might not be viable in large parts of the developing Global South, an argument could be made for its efficacy as a mechanism to fast-track emissions reductions in high-emitting, highly developed Global North countries. Existing financial

and technical capacity is a prerequisite though, which is why conversations around its reintroduction (or proliferation), must be cognisant of its locality.

Ultimately, safe clean power, generated through solar, hydro, and even green hydrogen (to name but a few) – if coupled with effective storage solutions – are on the whole, cheaper and more reliable than traditional fossil fuels or large nuclear production. As such, they should be the priority for any governments seeking to join the global shift towards a low-carbon, sustainable future.

Caveats do exist, however. Green hydrogen production is not possible without transmission and grid investments, or availability of land for renewable energy generation in close proximity to ports and GH2 production areas. Further, there is little doubt that while renewables and other clean energy solutions are proving to be cheaper energy resources, the transition requires investment which will push costs up for a period of time. Looking after vulnerable populations in this period is essential for a successful JET.

CONCLUSIONS

The imperative for a just energy transition, spearheaded by investment in renewable energy technologies, capacities, and skills, cannot be overstated given the urgency of combating climate change, meeting escalating demands for water, energy, and food, and reducing inequalities. OneWorld's extensive research and advisory services has underscored the need for universal access to clean energy, strengthened energy security, social ownership, decentralised systems, and integrated approaches to address water, energy, and food challenges. By prioritising these necessary conditions, governments can pave the way for a sustainable and equitable energy future. As we navigate this critical juncture, collaborative action is essential to ensure a just and sustainable future for all.

ABOUT ONEWORLD

OneWorld Sustainable Investments (OneWorld) was established in 2001 with offices in Cape Town and Johannesburg. In 2019, OneWorld Europe was established in Brussels as a sister company, responsible for all non-African projects and programmes. Both are sustainable development organisations focused on building social, economic, and institutional resilience in the context of climate and resource constraints. OneWorld has been working with local governments, climate finance and resilience building globally for over 20 years.

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