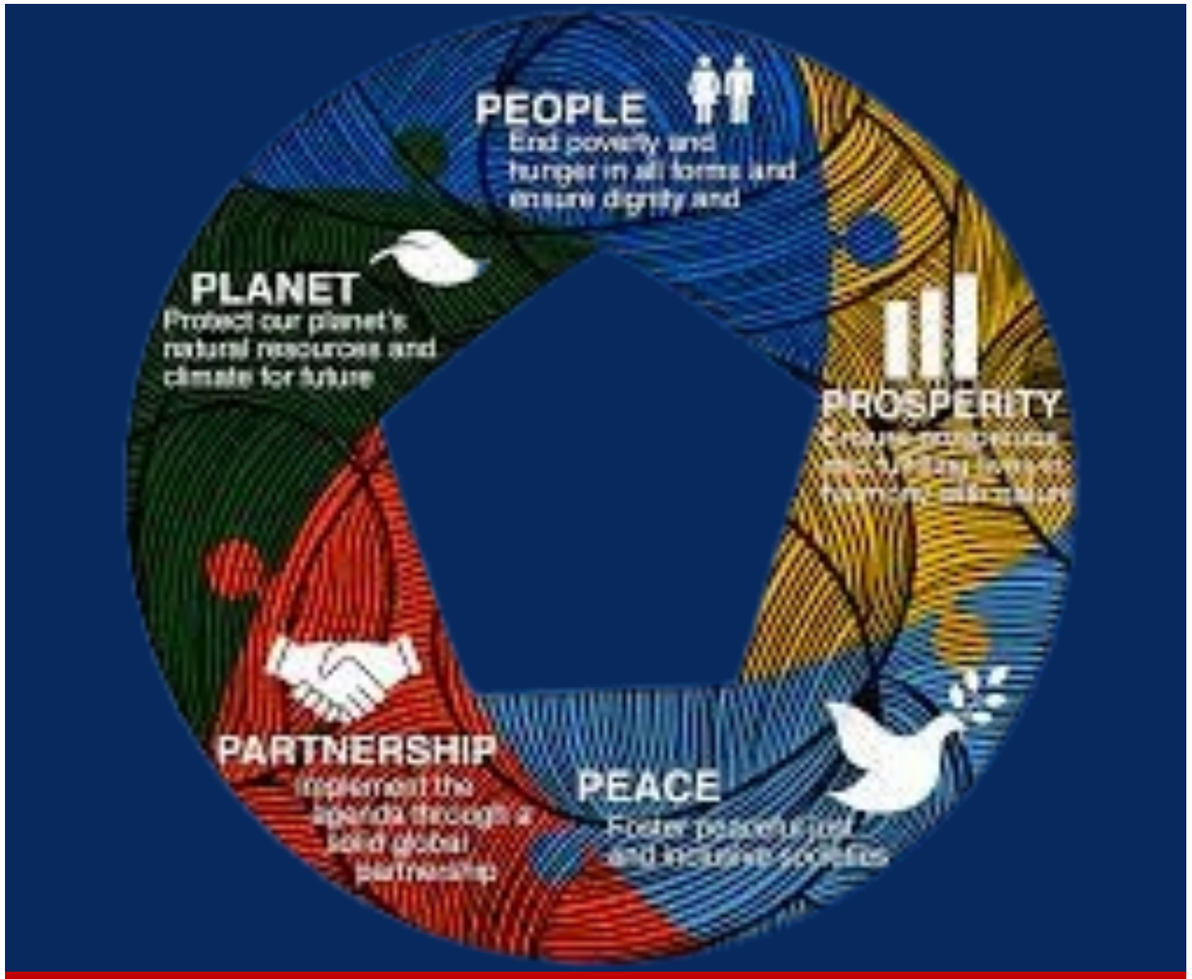

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South Africa's Green Mining Revolution:

Pioneering Sustainable Practices for the Future

South Africa's mining industry is on the brink of a transformative era as the government pledges a substantial investment in research and development (R&D) geared towards fostering "green mining" technologies. This strategic initiative marks a pivotal moment for the sector, aiming to mitigate its environmental footprint by reducing water consumption, minimizing pollution, and advancing cleaner energy sources for mining operations.

Undoubtedly, the mining sector stands as a cornerstone of the South African economy. However, its conventional methodologies have faced mounting criticism due to their adverse environmental impacts. Issues such as excessive water usage, air and soil contamination, and greenhouse gas emissions have prompted calls for change. The infusion of funds into green mining technologies signifies a conscious pivot towards a more sustainable trajectory for the industry.

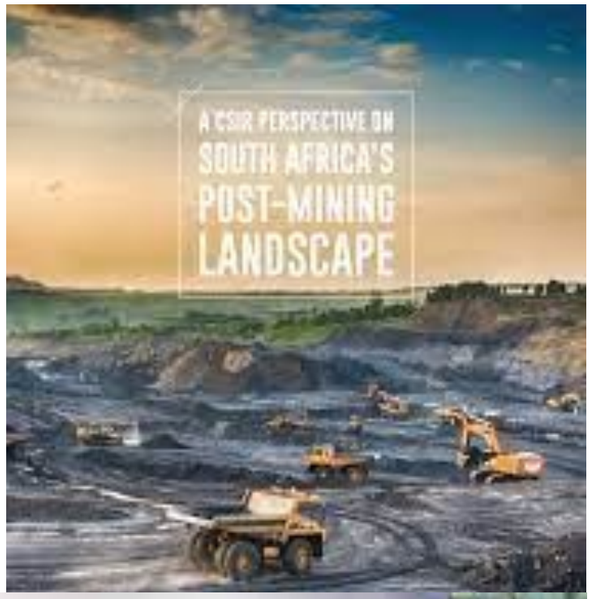
But what exactly does "green mining" encompass? The forthcoming focus is expected to center on several critical fronts:

Water Conservation: Anticipate the emergence of novel technologies facilitating closed-loop water systems that curtail freshwater consumption while promoting efficient recycling practices. Emission Reduction: R&D endeavors will likely target innovations aimed at mitigating greenhouse gas emissions stemming from mining activities. This could entail exploring renewable energy alternatives to power mining operations and developing cleaner machinery. Land Rehabilitation: Green mining initiatives may explore strategies to minimize land degradation during extraction processes and implement robust reclamation strategies to restore post-mining landscapes effectively.

The ramifications of this investment are bound to reverberate widely. Mining entities will be compelled to embrace these green technologies to remain both environmentally responsible and competitive within the industry. Delving deeper, potential applications of such technologies could include:

Development of biodegradable lubricants tailored for mining equipment. Integration of sensor-based systems to optimize water consumption during processing stages. Deployment of solar or wind-powered solutions to curtail reliance on fossil fuels for mining operations.

By fostering innovation in green mining practices, South Africa positions itself as a global leader in responsible mining methodologies. This not only underscores environmental stewardship but also underpins the sector's long-term viability—a critical cog in the South African economic machinery. As these new technologies take shape, their potential to revolutionize mining practices extends beyond national borders, promising transformative impacts on a global scale.



Energy Crisis Casts Shadow Over South Africa's Mining Boom

South Africa's mining industry, traditionally a pillar of the nation's economy, finds itself at a critical juncture as it grapples with a pressing challenge: an ongoing energy crisis. Despite recent discoveries of valuable minerals like lithium and platinum promising a potential surge in production, the specter of crippling power cuts looms large, threatening to undermine this progress.

The phenomenon known as load shedding, characterized by scheduled power cuts, has inflicted significant disruptions on mining operations. The Minerals Council of South Africa reports a troubling 6% decline in mining volumes attributable to these interruptions. Mines rely heavily on consistent electricity to power essential machinery, ventilation systems, and safety protocols. The erratic nature of the power cuts not only throws production schedules into disarray but also poses grave safety risks for workers operating underground.

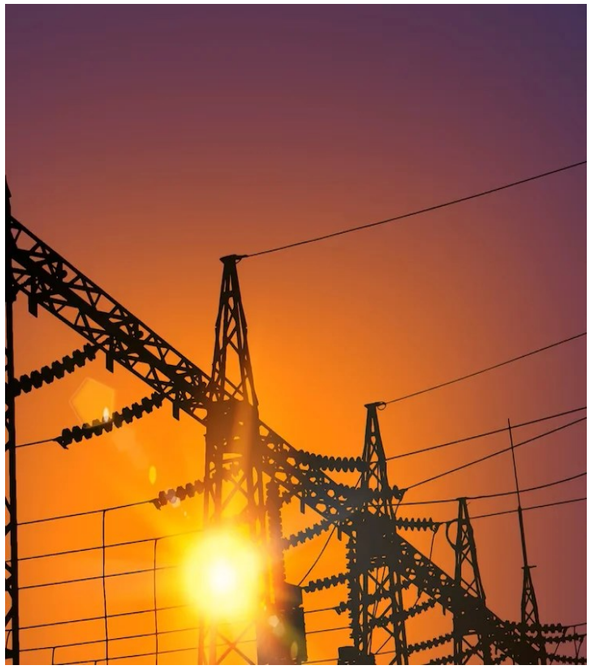
President Cyril Ramaphosa has publicly acknowledged the severity of the issue. The government's Energy Action Plan aims to tackle the crisis head-on by improving existing power stations and expediting the commissioning of new generation capacity. Additionally, a policy shift now allows mining companies to generate their own electricity, offering a glimmer of hope for mitigating some of the production losses.

The Stakes Are High

A revitalized mining sector holds immense promise for South Africa. With new mineral discoveries and increased production, the potential for job creation, enhanced government revenue, and heightened investment attractiveness is palpable. However, the energy crisis poses a significant threat to realizing these aspirations.

A Race Against Time

The success of the Energy Action Plan is paramount. Timely implementation is imperative to ensure a stable power supply for the mining sector to capitalize on recent discoveries. Without a reliable source of electricity, these valuable resources may remain untapped, stifling economic growth and impeding job creation.



A Call for Innovation

The current predicament also presents an opportunity for innovation. Investing in renewable energy solutions for mines could be a transformative strategy in the long run. This not only guarantees uninterrupted operations but also positions South Africa as a global leader in sustainable mining practices.

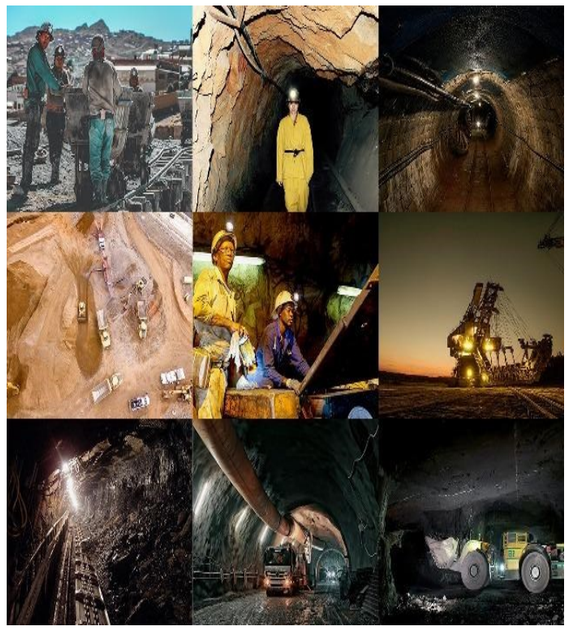
South Africa's mining sector stands at a crossroads. The nation's wealth lies beneath the surface, but the path to prosperity hinges on overcoming the energy crisis. Through decisive government action, innovative solutions, and a steadfast commitment to sustainability, the mining industry can emerge stronger, propelling the nation's economy forward into a brighter future.

Navigating the Power Gridlock: South Africa's Mining Sector at a Crossroads

South Africa's mining industry, historically a bedrock of the nation's economy, now finds itself at a critical juncture amidst an ongoing energy crisis. Recent discoveries of valuable minerals like lithium and platinum offer tantalizing prospects for a surge in production and economic growth. However, the persistent threat of crippling power cuts, known as load shedding, looms large, casting a shadow of uncertainty over the sector's future.

The Impact of Power Cuts

The Minerals Council of South Africa's reports of a 6% decline in mining volumes due to these disruptions underscore the severity of the challenge. Mining operations, heavily reliant on consistent electricity to power machinery, ventilation systems, and safety protocols, face immense operational hurdles. The erratic nature of load shedding disrupts production schedules, compromises safety underground, and erodes investor confidence.



Government Response and Remedial Measures

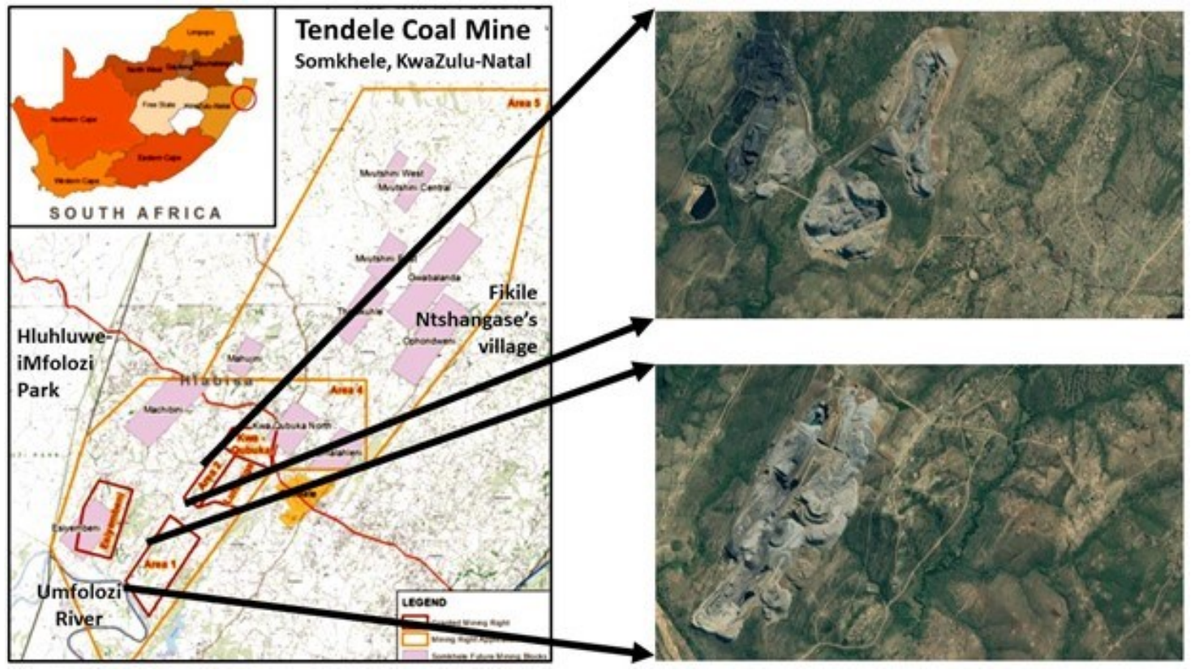
President Cyril Ramaphosa's acknowledgment of the crisis has spurred the government into action. The Energy Action Plan aims to tackle the root causes of the energy shortfall by improving existing power stations and fast-tracking the deployment of new generation capacity. Furthermore, recent policy shifts allowing mining companies to generate their own electricity offer a glimmer of hope for mitigating some of the production losses.

The High Stakes of Success

The stakes are undeniably high for South Africa's mining sector. A revitalized industry holds the promise of job creation, increased government revenue, and enhanced global competitiveness. Yet, the energy crisis threatens to stifle these aspirations, emphasizing the urgent need for effective solutions.

A Race Against Time

The success of the Energy Action Plan hinges on timely implementation. A stable power supply is imperative for the mining sector to capitalize on recent discoveries and realize its full potential. Without swift and decisive action, the country risks squandering its valuable mineral wealth and missing out on crucial economic opportunities.



A Call for Innovation and Sustainability

Amidst adversity, there lies an opportunity for innovation. Investing in renewable energy solutions for mines not only ensures uninterrupted operations but also positions South Africa as a pioneer in sustainable mining practices. Embracing renewable energy technologies could not only alleviate the energy crisis but also mitigate environmental impact and enhance the sector's long-term viability.

Charting a Course Forward

South Africa's mining sector stands at a crossroads, with the path to prosperity fraught with challenges. However, with decisive government intervention, innovative solutions, and a steadfast commitment to sustainability, the industry can navigate these obstacles and emerge stronger than ever. Now is the time for bold action, collaboration, and unwavering determination as South Africa seeks to unlock the full potential of its mining riches and chart a course toward a brighter, more sustainable future.

Rich rewards result from investing in WearCheck's training

Ensuring that condition monitoring customers whose maintenance staff undergo ongoing technical skills training earn significant returns from their investment into the training courses, is a priority for condition monitoring specialist company, WearCheck.

Maintenance crew members can choose from more than 15 courses that are conducted by WearCheck's experts in various categories of condition monitoring, including general oil analysis, reliability services, transformers and wind turbine oil analysis. Many of the courses earn valuable CPD (continuing professional development) points for delegates.

The training schedule, which has run successfully for over two decades, is overseen by Steven Lumley, technical manager at WearCheck.

'Technology is developing at an exponential rate, and that which is used in the condition monitoring industry is no exception.

Therefore, even experienced technicians need to brush up on new skills and learn about technical innovations as they become available on the market,' she said.

'WearCheck continuously adds in new training content to the course material to address the need to educate maintenance personnel about newly introduced techniques that can boost accuracy and efficiency, and make a condition monitoring programme even more effective.

Daniel Boakye (second from left) is the technical & sales manager for WearCheck in West Africa, *and conducts multiple training courses for various mining companies in Ghana.*

Therefore, it is important to attend the courses regularly, and not just on a once-off basis, to ensure that technical knowledge is up to date.

'The words of Albert Einstein resonate well with WearCheck's philosophy – he said, "I have no special talent. I am only passionately curious." At WearCheck, we are passionately curious about novelty and improvement in the condition monitoring arena, and we're proud to be able to share our knowledge with our clients.

'We embrace innovation at WearCheck, and are constantly implementing new technologies – therefore, the more informed our clients are about the upgraded analysis systems, the better their return on investment into a condition monitoring programme.

The different courses are structured to be appropriate for several levels of maintenance crew members, from introductory right up to extremely scientific and technical.

WearCheck's customer training courses include oil analysis courses and Mobius courses:

Course	**Days**
• Precision Shaft Alignment	2, incl. practical
• Precision Balancing	2
• Vibration Analysis ISO CAT I	5, incl. exam
• Vibration Analysis ISO CAT II	5, incl. exam
• Vibration Analysis ISO CAT III	5, incl. exam
• Asset Reliability Practitioner - advocate (ARP-A)	3, incl. exam
• Asset Reliability Practitioner - engineer (ARP-E)	5, incl. exam
• Asset Reliability Practitioner - leader (ARP-L)	5, incl. exam
• Oil Analysis 1	2
• Oil Analysis 2	1
• WearCheck Customised	2
• Asset Reliability Practitioner (3 courses)	6 months

2024 OIL ANALYSIS COURSES: WearCheck training course dates

COURSES	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
Bloemfontein				09-11				
Cape Town					20-22			
Durban					13-15			
Johannesburg		07-09				10-12		
Kathu			11-13					
Kimberley	09-11							
Middelburg		14-16						
Nelspruit								12-14
Oranjemund			04-06					
Richards Bay								
Rustenburg							08-10	
Windhoek								

WearCheck offers other on-site courses on request:

WearCheck Customised – oil analysis for workshop technicians (full day)

For more details on course content and prices, please view Training at www.wearcheck.co.za. To book one of these courses, please contact Michelle van Dyk on training@wearcheck.co.za or call 082 381-3321.

Mobius courses at WearCheck

WearCheck has been an accredited training partner for the internationally acclaimed Mobius Institute since 2015. Mobius courses lead to accredited certification for asset reliability practitioners, condition monitoring specialists and precision maintenance technicians.

2024 WearCheck Mobius courses (classroom / online):

COURSES	CPD	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Vibration Analysis – CAT 1 (5 days)	4		13-17				09-13			
Vibration Analysis – CAT 2 (5 days)	5			10-14				14-18		
Vibration Analysis – CAT 3 (6 days) exam Monday	5				08-15				11-18	
Infra-red – CAT 1				24-28				07-11		
Precision Balancing (2 days)		15-16				12-13				02-03
Precision Alignment (3 days)		17-18				14-15				04-05

Pricing for Mobius courses is as follows (excl. VAT):

Classroom Training CAT1 – R17,992.60
CAT2 – R21,788.80 CAT3 – R27,534.40
Infra-red CAT1 – R19,763.40 **(new course)**
Precision Alignment – R10,034.44
Precision Balancing – R10,034.44

Online Training (Four Months) Prices provided on request

To book a Mobius course with WearCheck, contact Louis Peacock to book a spot: louis@wearcheckrs.com or +27 82 494 9461. More details are available at https://www.wearcheck.co.za/training/mobius-training.html

All Mobius courses are presented at various venues throughout Africa. Courses can be presented online or on-site at a customer's premises for a minimum of seven delegates. For on-site training, there may be an additional charge for the lecturer's travel and accommodation.

WearCheck experts conduct condition monitoring training courses all year round, in multiple locations. WearCheck training consultant Jan Bakker (blue shirt) conducted oil analysis training courses in Gauteng and North West Province in South Africa, recently.

Platinum Power: South Africa's Thriving Role in the Battery Metal Revolution

South Africa is home to some of the world's richest deposits of battery metals, such as lithium, cobalt, and manganese. These metals are essential for the production of electric vehicles (EVs) and other clean energy technologies. As the demand for these metals grows, so too will the mining industry in South Africa.

Lithium is a key component of EV batteries. It is used to store the electricity that powers the car. South Africa is the world's fourth-largest producer of lithium, and it has the potential to become a major player in the global EV market.

Cobalt is another important battery metal. It is used to make the cathodes of EV batteries. South Africa is the world's third-largest producer of cobalt, and it is also a major producer of manganese, which is used to make the anodes of EV batteries.

The demand for battery metals is expected to grow significantly in the coming years. This is due to the increasing popularity of EVs and other clean energy technologies.

The International Energy Agency (IEA) predicts that the global demand for lithium will increase by 400% by 2030, and the demand for cobalt will increase by 600%.

The rise of battery metals mining in South Africa has the potential to create jobs and boost economic growth. The mining industry is a major employer in South Africa, and it is estimated that the battery metals sector could create up to 60,000 jobs in the country.

However, there are some challenges that need to be addressed in order to ensure the sustainable development of the battery metals mining industry in South Africa. These challenges include environmental pollution, water scarcity, and social conflict.

The government of South Africa is committed to developing the battery metals mining industry in a sustainable way. It has put in place a number of policies and regulations to address the environmental and social challenges associated with the industry.

The rise of battery metals mining in South Africa is an opportunity for the country to create jobs, boost economic growth, and transition to a clean energy future. However, it is important to ensure that the industry is developed in a sustainable way.

Here are some of the ways in which the government of South Africa is promoting the sustainable development of the battery metals mining industry:

The Mineral Beneficiation Strategy: This strategy aims to increase the value of minerals produced in South Africa by encouraging local processing and beneficiation.

This will create jobs and reduce the amount of minerals that need to be exported.

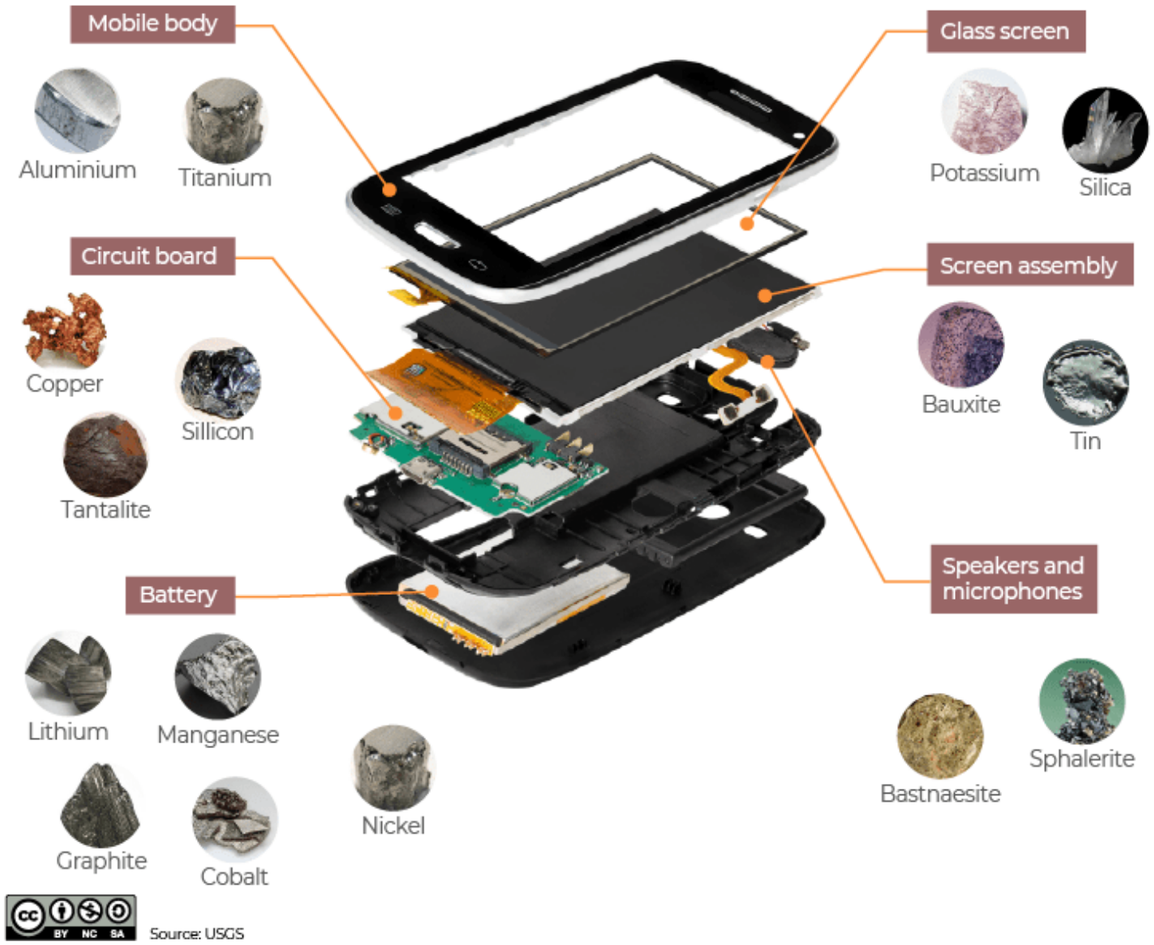
- **The Green Mining Charter:** This charter sets out environmental and social standards for the mining industry. It aims to ensure that mining operations are conducted in a way that minimizes pollution and social conflict.
- **The Water for Mining Strategy:** This strategy aims to ensure that the mining industry has access to water in a sustainable way. It includes measures to improve water efficiency and to reduce water pollution.

The government of South Africa is committed to developing the battery metals mining industry in a sustainable way. The policies and regulations that it has put in place are designed to create jobs, boost economic growth, and protect the environment.

NATURAL RESOURCES

A world of minerals in your mobile phone

More than half of a mobile phone's components - including its electronics, display, battery and speakers - are made from mined and semi-processed. materials.



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Industrial & Residential Protection

These Construction Projects Were built By Group Five.

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SECURITY GROUP

Email Us:echaweza@gebs-group.com

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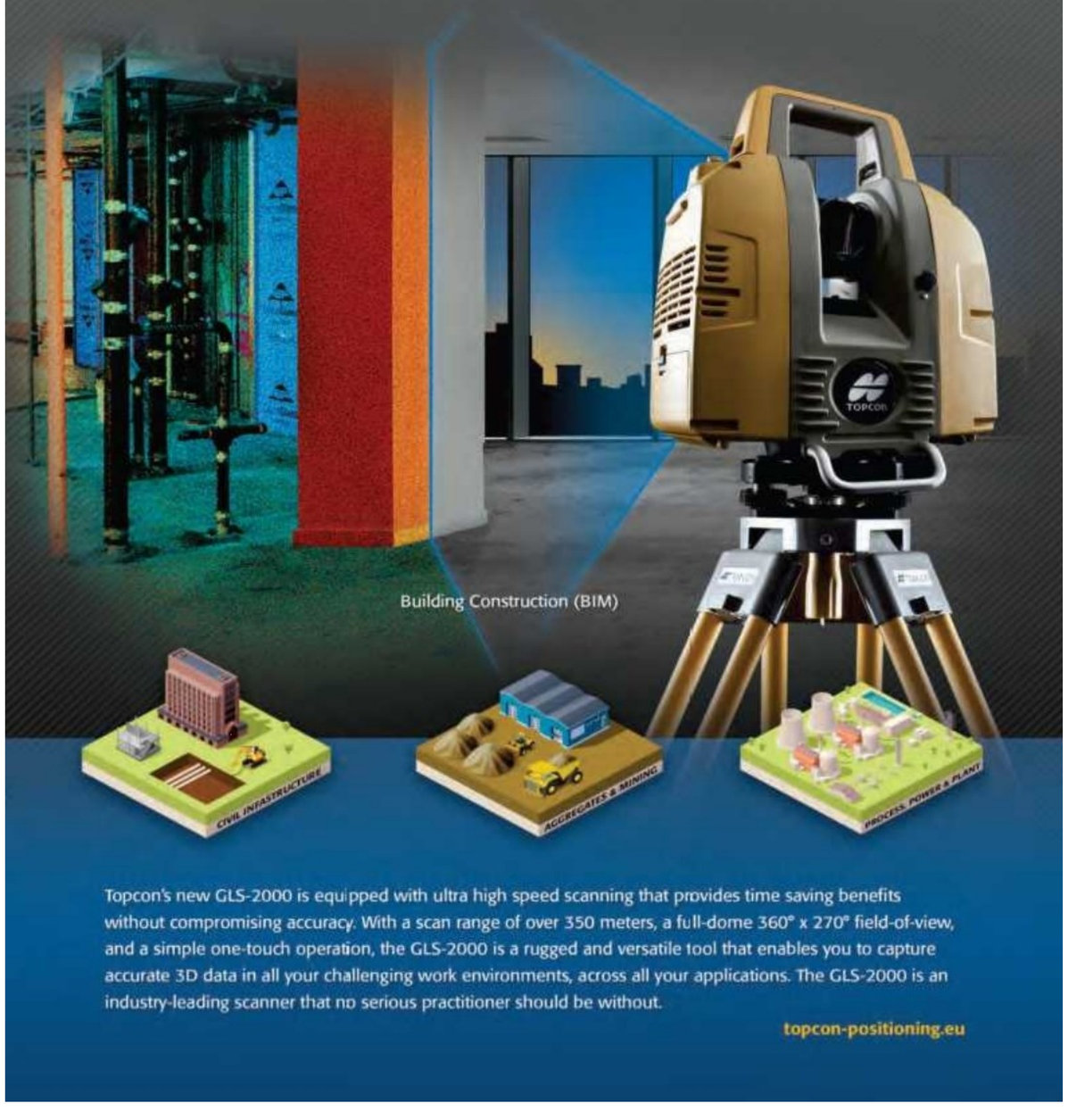

Topcon's new GLS-2000 is equipped with ultra high speed scanning that provides time saving benefits without compromising accuracy. With a scan range of over 350 meters, a full-dome 360° x 270° field-of-view, and a simple one-touch operation, the GLS-2000 is a rugged and versatile tool that enables you to capture accurate 3D data in all your challenging work environments, across all your applications. The GLS-2000 is an industry-leading scanner that no serious practitioner should be without.

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KENYA BUILDING & CONSTRUCTION MARKET ANALYSIS 2024

Kenya stands as the proud home to Africa's towering skyscrapers, with numerous projects underway in both governmental and private sectors. A total of 17 skyscrapers have already surpassed the 100-meter mark, showcasing the nation's commitment to urban development.

In 2021, the Kenyan construction market exhibited a robust value of $16.6 billion, and projections suggest an Annual Average Growth Rate (AAGR) exceeding 5% from 2024 to 2026.

This anticipated growth is attributed to strategic investments in pivotal sectors such as transportation, electricity, housing, and manufacturing.

A key initiative involves the construction of 10,000 housing units, contributing significantly to the sector's expansion.

The latest data from the Kenya National Bureau of Statistics (KNBS) for Q3 2022, coupled with leading indicators, indicates a robust economic performance.

The nation experienced a notable 4.7% increase in Real GDP during this period, primarily fueled by vibrant activities in wholesale and retail trade, education, electricity and water, as well as the real estate sector.The surge in construction activity can be directly linked to Kenya's flourishing economy.

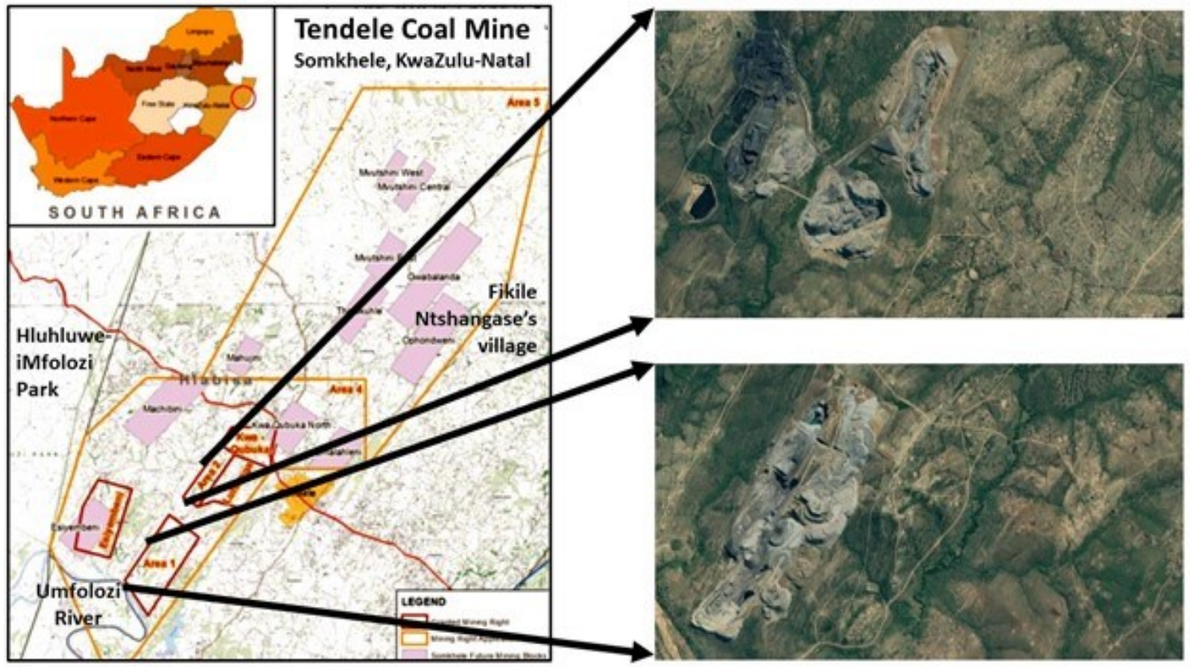
The National Construction Authority (NCA) processed 8,154 project registration applications in the previous year, as revealed in the recent Status of the Build Environment Report by AAK. Notably, the approved projects carried a total cost of Sh280.9 billion.

Looking ahead to 2024, Kenya's construction landscape includes a 30 million euros ($32 million) investment in constructing eight sports facilities.

A significant infrastructure project is the development of a 104km four-lane stretch from Kisian in Kisumu to the Busia border town, accompanied by an 11km link road between Kisian and Kisumu bypass. Additionally, a 127km stretch between Jinja and Malaba. This initiative is an extension of the $1.48 billion Kampala-Jinja expressway, slated for completion by 2025.

Kenya Railways has initiated Phase 1 of The Nairobi Railway City project, an endeavor with an estimated cost of KES12 billion ($95 million). The groundbreaking ceremony, held at the Nairobi Central Railway station in December, marked the commencement of this transformative urban development project. The Kenyan Government's vision for 'The Nairobi Railway City' involves the redevelopment of Nairobi Central Railway station and its environs into a multimodal, transit-oriented urban hub.

South Africa Unveils Platinum Bonanza: New Deposit Sparks Mining Revival



South Africa, known for its rich mineral resources, is once again at the forefront of the global mining industry with the discovery of a significant platinum deposit. This finding has ignited excitement within the country's mining sector, promising a resurgence in economic growth and development.

Located within the renowned Bushveld Complex, this newfound platinum deposit has captured the attention of industry experts and investors alike. Platinum, a highly valuable mineral crucial for catalytic converters in automotive manufacturing, holds immense economic potential for South Africa, positioning the nation as a pivotal player in the global market.

Rising Demand and Strategic Positioning

The global demand for platinum has witnessed a remarkable upsurge in recent years, primarily driven by the expanding automotive sector. With electric vehicles (EVs) gaining traction worldwide, the necessity for platinum-based catalytic converters remains unabated. South Africa's timely discovery of this platinum deposit strategically aligns with the burgeoning demand, offering the opportunity to meet global needs and solidify its position as a key supplier.

Economic Boon and Job Creation

The economic implications of this discovery are profound. The development of a new platinum mine is poised to inject vitality into South Africa's economy, generating a multitude of employment opportunities across various sectors. From skilled mining professionals to support staff and service providers, the ripple effect of job creation will invigorate local communities and stimulate economic growth. Moreover, increased government revenue through taxes and royalties will bolster public coffers, enabling investment in critical infrastructure and essential services.

Catalyst for Further Exploration

Beyond its immediate benefits, this platinum discovery serves as a catalyst for further exploration and development within South Africa. Mining companies, emboldened by the prospect of lucrative finds, are likely to intensify their efforts to uncover additional mineral deposits. This proactive approach not only augments the country's mineral reserves but also fosters innovation and technological advancement in mining practices.

Navigating Challenges: Responsible Development

While the discovery marks a milestone for South Africa's mining industry, challenges lie ahead. Feasibility studies must be conducted to assess the deposit's extent and the feasibility of extraction, ensuring sustainable resource utilization. Environmental impact assessments are imperative to mitigate ecological risks and uphold responsible mining practices. By addressing these challenges with diligence and foresight, South Africa can harness the full potential of its mineral wealth while safeguarding its natural heritage.

A Brighter Future Beckons

In conclusion, the discovery of this new platinum deposit heralds a brighter future for South Africa's mining industry. With strategic planning, responsible development, and collaborative efforts between government, industry, and local communities, the nation stands poised to reap the rewards of this invaluable resource. As South Africa navigates the road ahead, the promise of job creation, economic prosperity, and global prominence shines brightly, fueled by the brilliance of its newfound gem: platinum.

From Waste to Wonder: Transforming Plastic Pollution into 3D-Printed Homes

The world is grappling with a dual crisis: an escalating plastic pollution problem and an increasing housing shortage. However, an innovative solution is emerging, bridging these challenges – the creation of 3D-printed homes from recycled plastic waste. This revolutionary concept is not just turning trash into treasure; it's redefining the future of sustainable construction.

Globally, the issue of plastic waste remains a pressing concern, with millions of tons ending up in landfills and oceans, wreaking havoc on ecosystems and posing severe health risks. Traditional recycling methods often fall short, leading to a significant portion of plastic escaping proper disposal, further polluting our environment.

The advent of 3D printing technology provides a groundbreaking solution to combat the plastic predicament. By utilizing recycled plastic filament, companies and organizations are producing sustainable building materials for 3D-printed homes. This not only mitigates the reliance on virgin plastic but also introduces a cost-effective and environmentally friendly alternative to conventional construction methods.

The advantages of 3D-printed plastic homes extend beyond environmental sustainability. These structures boast:

1. Durable Construction: 3D-printed plastic can exhibit incredible strength and weather resistance, ensuring longevity with proper maintenance.
2. Quick Build Times: The printing process can significantly outpace traditional construction methods, potentially reducing build times from months to weeks.
3. Cost-Effective Solutions: Recycled plastic filament proves to be a cost-efficient alternative to conventional building materials, making these homes more accessible and affordable.
4. Customizable Designs: Leveraging 3D printing technology allows for intricate designs and personalized features, creating unique and functional living spaces.
5. Disaster Relief Aid: The rapid construction capabilities of 3D printing can play a crucial role in providing temporary or permanent housing solutions after natural disasters, offering a swift response to urgent housing needs.

The viability of 3D-printed plastic homes is no longer confined to theoretical discussions; real-world projects are already showcasing the potential of this innovative approach:

Netherlands: Eindhoven witnessed the construction of the world's first 3D-printed plastic house, crafted entirely from recycled plastic waste, showcasing the tangible possibilities of this technology.

Mexico: The New Story Charity is actively engaged in building 3D-printed homes for families in need. These structures utilize recycled plastic sourced from local communities, demonstrating the applicability of the concept on a global scale.

Kenya: WASP, an Italian construction technology company, is making strides in constructing 3D-printed schools in Kenya. They utilize locally sourced plastic waste, addressing environmental concerns while providing valuable infrastructure.

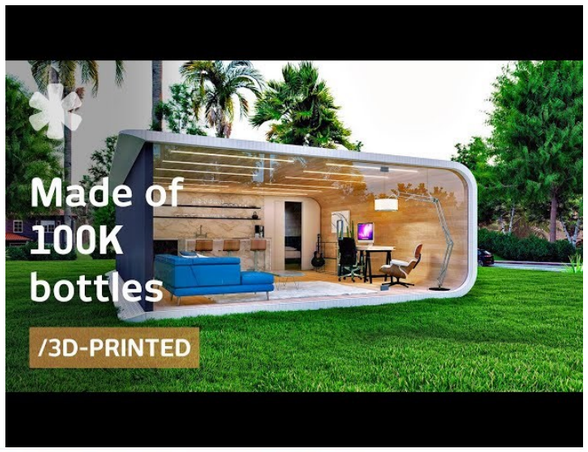
While the potential is immense, 3D-printed plastic homes encounter challenges that need addressing for broader adoption:

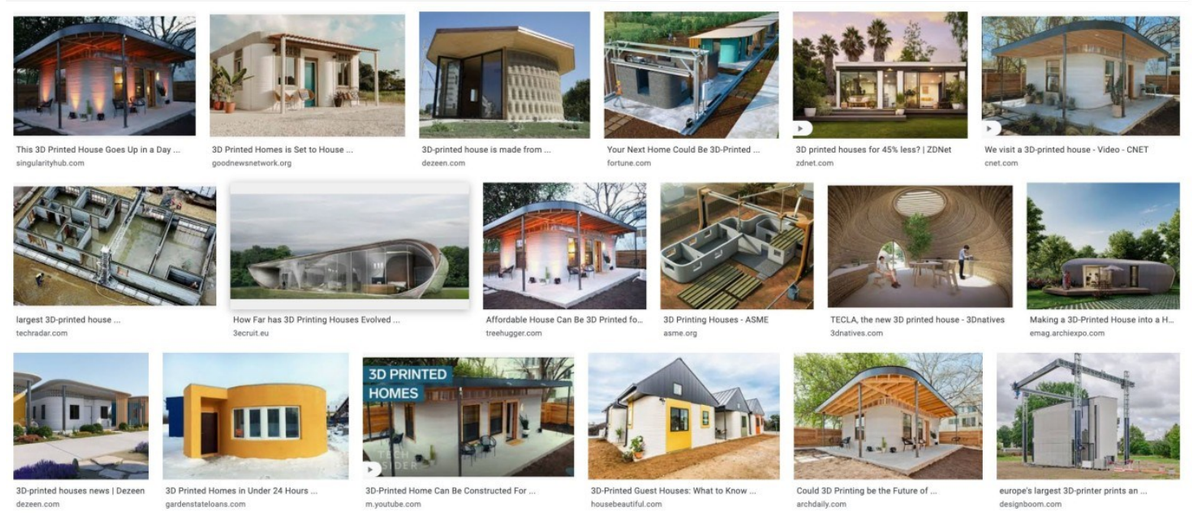
Scalability: The technology needs to be scalable for mass construction projects, addressing housing shortages on a larger scale.

Building Regulations: Adapting and aligning existing building regulations with 3D-printed construction methods is crucial for widespread acceptance.

Public Perception: Educating and gaining public trust in the safety, durability, and benefits of 3D-printed plastic homes is essential for overcoming skepticism.

Ongoing research and development, coupled with successful pilot projects, are crucial steps towards overcoming these challenges.





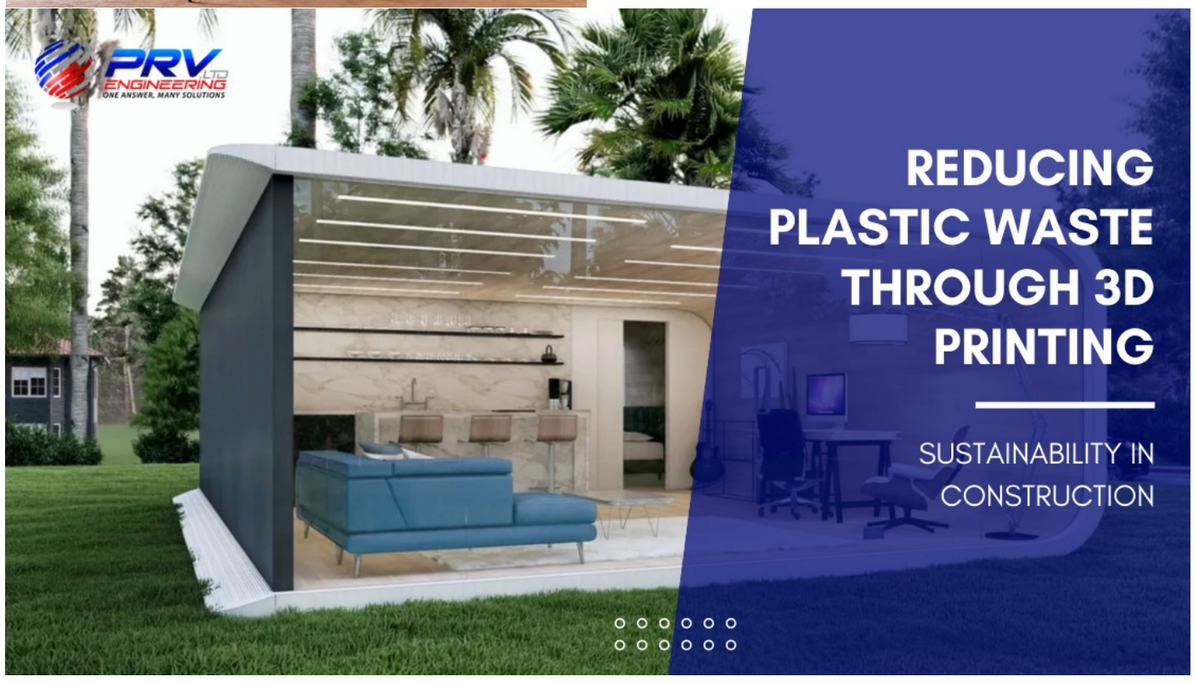
Engaging with this transformative journey is not limited to industry professionals; everyone can contribute to the success of 3D-printed plastic homes:

Support Organizations: Contributing through donations or volunteer work with NGOs and companies actively involved in 3D-printed plastic home projects can make a significant impact.

Raise Awareness: Spreading the word about this innovative solution and its potential to address both plastic pollution and housing challenges is essential for garnering support.

Demand Sustainable Options: Advocating for policies that encourage the use of recycled materials in construction and support innovative approaches like 3D printing is a collective responsibility.

Embracing this revolutionary technology presents an opportunity to turn plastic waste into homes, communities, and a brighter future for both humanity and the planet. Let's join hands and build a world where waste becomes wonder, and discarded plastic transforms into a foundation for a more sustainable and equitable future.



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