After the coal rush, the clean up.

A community blueprint to restore the Hunter

A REPORT FROM HUNTER RENEWAL

HUNTER Renewal

Acknowledgement of Country

Hunter Renewal acknowledges Australia's First Nations Peoples as the Traditional Owners and custodians of this land and gives respect to their Elders — past and present — and through them to all Aboriginal and Torres Strait Islander people.

This report was conceived and written on Wanaruah/Wonnorua, Worimi, and Awabakal Country.

The Hunter Renewal Project

Hunter Renewal is a project to bring people, businesses, and organisations of the Hunter Valley together to envision a diverse, resilient, and thriving future for our region. The Hunter Renewal project was created by the Hunter Central Rivers Alliance and Lock the Gate Alliance in 2017. Both groups are focused on supporting regional communities to make decisions for themselves about their future.

Initial door-knocking in 2016-17 of over 4,000 homes in Singleton and Muswellbrook found that 90 per cent of people surveyed wanted a plan for the future of the region after coal mining. It was evident that no one in politics or business was supporting the development of a community-driven plan, so Hunter Renewal stepped in to address the gap. In 2017-18 Hunter Renewal hosted several community dinners and workshops to start discussing what a plan for the future might look like.

Following a large summit held in February 2019, the *Hunter Renewal Roadmap* was created, setting out community priorities for transition. One of our key priorities is a locally-based independent statutory authority to oversee and coordinate an orderly region-wide transition. This is supported by thousands of local people, many businesses and several other organisations. The recommendations in this report to address post-mining land issues are a crucial adjunct to the ongoing campaign for a Hunter Valley Transition Authority.

In 2021 Hunter Renewal hosted a series of workshops in partnership with the Hunter Jobs Alliance. These were aimed at gathering community priorities and perspectives to inform decisions about the Royalties for Rejuvenation Fund and the Hunter Expert Panel, and to ensure the community were given access to information and opportunities to be involved in diversification planning and initiatives. This was published in the report *Future-proofing the Hunter: Voices from our Community.*

Our 2022 report *Diversification and Growth: Transforming Mining Land in the Hunter* highlights the economic opportunities from the progressive closure of mines in the region. It examined scenarios for 130,000 hectares of mined and mine-owned buffer lands. Expanding biodiversity and agricultural investment onto these mining buffer lands could more than double economic outputs and jobs compared to the current trajectory of basic mine rehabilitation. The maximum conservation scenario model, combined with using just 1,630 hectares of heavily-impacted lands for clean industrial development could enable the creation of 13,600 jobs across 10 different industries. Manufacturing which supports the renewable energy industry could grow to an aggregate economic output of $3 billion over the next 25 years. We believe that this vision of environmental restoration, agricultural production, and job creation in clean industries can be made a reality with careful planning and public input. We need a policy framework that puts people, nature, and future generations at the heart of decision-making.

We are grateful to all of the Hunter Valley community and our volunteers who contributed to this report. Thanks also to Kimberley Crofts for the design.

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www.hunterrenewal.org.au

Cover image is an aerial view of Wambo open cut coal mine from Lock the Gate Alliance. The mine is cut into the landscape in the foreground, with the valley and mountains stretching into the background.

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Foreword

John Drinan has lived most of his life in the Hunter Valley and continues to advocate for it. He is an agriculturalist and environmentalist, and is now retired from working as a farmer, researcher, educator, and administrator. His book, *The Sacrificial Valley*, records the environmental, human, and social damage caused to the region by coal and calls for an urgent start to its reconstruction.

The era of coal mining and burning is coming to an end faster than predicted even a few years ago, and the coal-dominated Hunter Valley economy is facing the prospect of severe pain. Closure of the mines and power stations will progressively leave coal miners, power station workers and employees of coal service businesses unemployed. The consequences will be felt throughout the regional economy but most severely in the major towns.

Sadly, this realisation has been slow in developing urgency in the minds of local councils and governments, but they are now starting to think about the post-coal future. The NSW Government's *Upper Hunter Economic Diversification Action Plan* and various council-led activities are in evidence but are inadequate for the task ahead. That is because there is far more to it than rebuilding the economy.

Once-grand landscapes are gone, replaced by vast areas of featureless ridges and mountainous piles of spoil, interrupted by man-made drainage lines and huge holes in the ground. Streams above and below ground are broken and contaminated. Threatened and endangered species of plants and animals are steadily, sometimes catastrophically, reduced. Unique, ecologically endangered communities are being destroyed or reduced to unsustainable sizes. These, too, must be fixed as must the effects on human and community health and well-being. The effects of poor air quality cannot be denied, but less recognised are the consequences of, for example, excessive noise and night-lighting, the loss of home and sense of place, and the disturbance of families and communities by long shifts. And it must not be forgotten that the Wanaruah/Wonnorua people have long been alienated from their traditional lands.

Reconstruction of the Hunter cannot be successful unless councils and governments realise that a single-minded focus on the economic domain, to the exclusion of the environmental and social domains, is the very thing that brought the Hunter to the mess it is now in. Reconstruction can only be effective if it is accepted that these are all interdependent and must be addressed concurrently.

This crucial point is one of many in this excellent report by Hunter Renewal as it brings to the forefront the multiple elements of effective reconstruction of the Hunter. It reveals the enormous scale and complexity of reconstruction of this mine-ravaged region, a task never attempted before in Australia. Consequently, new legislation, new structures, and original research, development and education, and the necessary funds will be needed to effectively marshal the rich assets and capabilities already existing in the region.

Hunter Renewal argues correctly that the task must be undertaken by a locally-based, independent Hunter Rehabilitation and Restoration Commission set up under state legislation. One or more government departments are incapable of applying the necessary holistic approach. It is equally right in its demand that the Hunter community be actively involved in planning and oversight. The arrogance of government and mining meeting behind closed doors must now give way to include the people and communities affected by their decisions and who will live in the Hunter after mining has gone. Justice must now be done: for the people and communities that have lived with the downsides of mining and now face potential desolation, the workers whose jobs will disappear, the Wanaruah/Wonnorua people, and the environment. A just transition must be achieved.

As I have argued in my book, *The Sacrificial Valley,* governments of both stripes have massively failed the Hunter, but redemption is always possible. Here now is an unmissable opportunity to do something truly remarkable. If not grasped, the region's environment, communities and people will suffer much further. Out of the rubble of a coal economy, an exciting future can be created. All that is needed is political goodwill and commitment to justice, and imagination and determination to harness the opportunities and strengths in plain sight. Let's start laying the foundations as a community for building that grand new region.

~John Drinan

RIGHT: Aerial view of the Hunter river and distant mountains.

"Out of the rubble of a coal economy, an exciting future can be created. All that is needed is political goodwill and commitment to justice."

Introduction

The future of the Hunter Valley is in the balance: decisions made now will determine the viability of the region's communities and environments for many decades to come. The Hunter economy, people and landscape are moving towards a post-coal future. The question is, how well will we manage this change?

Managed poorly — piece by piece and in the interests of mining companies, we risk being left with a degraded landscape, depressed communities, and few opportunities. If managed well, planned structural change offers a tremendous opportunity for the region to become a more vibrant and attractive place to live, with connected communities, a diverse and resilient economy, and a thriving natural environment. To achieve this will take a new approach to planning and development in the region in partnership with local communities. It will require new laws and well-resourced public agencies capable of managing the restoration and ensuring coal companies pay their dues, and clean up after themselves.

The coal industry has dominated the physical, social, and economic landscape of the Hunter for generations, but its reign is coming to an end. While the price of coal continues its ups and downs, in the medium- to long-term the industry faces terminal decline due to global economic and policy influences beyond the control of state and federal governments. The decline of the coal industry will see more than 130,000 hectares of mine-owned land in the Hunter become available in the next two decades for reuse. The restoration of this land could contribute an estimated $200 million to the Hunter economy, create hundreds of new full-time jobs, and position the Hunter as a world leader in regenerative industries.[1] But to unlock the opportunities of the future, we must clean up the legacy of the past.

In its recently released *Hunter Regional Plan 2041* the NSW Government acknowledges that the region's post-mining transition is underway and commits to diversifying its industrial and employment base.[2] The government's laudable objective is to reposition the Hunter to focus on renewable energy and the circular economy, but to achieve this will require a new approach that cannot be accomplished in closed-door meetings with mining companies. Decisions that reshape the future of the Hunter must be made publicly, with community, and in the public interest.

Crucial to success is local empowerment and self-determination. This *Community Blueprint* was designed to bring local voices to the table so that decisions are made with them, not for them. It is about getting the right policy settings to enable new, climate-positive projects and development on post-mining lands — only then can we get moving on proposing what those new projects will be. The *Community Blueprint to Restore the Hunter* is a call to action. Let's get the right structures in place to enable a prosperous, inclusive, and sustainable future for our Valley.

Our process

Earlier and ongoing community engagement found that mine rehabilitation and the future of the Valley are of great concern to local people. For this report we began by analysing over 100 documents from government, academia, and industry about post-mining land use, planning, and related issues. From this a first draft of principles and recommendations for action was created and put to a panel of ecological, social, and technical experts from the University of Newcastle for review and amendment. The Expert Panel was chaired by Emeritus Professor Will Rifkin and included Dr Hedda Askland, Dr Alex Callen, Professor Ravi Naidu, Dr Liam Phelan, Dr Meg Sherval, Dr Caroline Veldhuizen and Professor Sarah Wright. Wanaruah/Wonnorua Elders also advised on the content of this first draft.

The second draft was then reviewed and further amended by Hunter community members through a series of workshops, interviews and an online survey. This was supported through extensive research by Hunter Renewal's research team. The principles and recommendations in this report are the outcome of that phased, collective community-based process.

Our approach demonstrates the value of including a wide range of perspectives in planning for a post-coal future, as well as the importance of ongoing and meaningful community engagement. In all, 130 Hunter residents took part, including eight people who identify as Aboriginal and/or Torres Strait Islander. These residents are land holders, students, business owners, economists, coordinators for Landcare, mine rehabilitation experts, former United Nations

ABOVE: Aerial view of the Wambo open cut coal mine near Singleton. Photo from Lock the Gate Alliance.

officials, Indigenous knowledge holders, renewable energy workers, and biodiversity mapping specialists. Many of these people live in mine-affected areas and approached the review of the principles and recommendations through the lens of lived experience. Their voices are featured throughout this report.

How this report is structured

Principles and recommendations for post-mining land use in the Hunter are presented in this report in five categories: (1) Rehabilitation and Landscape Restoration, (2) Regional Planning and Governance, (3) Community, (4) First Nations, and (5) Climate and Environment. Within these categories, each recommendation represents what is necessary to bring its principle to life, and all recommendations are interdependent. Spread throughout the report are case studies, key statistics, and deeper analysis of key issues to help draw attention to what is at stake, what needs to be done, and how it can be done.

For a summary of all principles and recommendations, please turn to the *The Hunter Restoration Blueprint* in the centre spread, pages 16 and 17.

Community priorities

We asked Hunter residents through our engagement to prioritise the recommendations. Their priorities spanned all of the five categories, and some recommendations were clearly favoured. These were:

- Increase coal mining royalties to support the Hunter's transition and repair the landscape through long-term ecosystem restoration.
- Set stronger legal obligations so that companies cannot leave voids that will become a perpetual hazard to human and environmental health.
- Mandate greater community involvement in post-mining land use planning, and ensure new developments will benefit Hunter communities for the long-term.
- Support the return of mine-owned land to Traditional Owners (especially unmined buffer lands), and engage First Nations people in decision-making for new projects from the outset.
- Create an independent Hunter Rehabilitation and Restoration Commission to plan, coordinate and deliver a restored Hunter Valley.

01 Rehabilitation & Landscape Restoration

PRINCIPLE

Mine-owned lands will be restored to support biodiversity and regenerative industries

In the next 20 years over 130,000 hectares of mine-owned land in the Hunter will become available for new uses as 17 mines close.[3] That includes over 50,000 hectares of buffer-lands and more than 25 massive final voids cratered across the Valley.[4] Mines are obliged to rehabilitate towards the 'final landform' approved in their development consents.[5] NSW law, however, currently lacks any cohesive framework for the managed closure of a mine at the end of its life; nor for the restoration of the land and its release for new purposes. This means we are failing to meet international standards and even our own government (and industry) leading practice guidelines.[6] The NSW Resource Regulator is responsible for certifying that rehabilitation has been completed, yet only a very small proportion of land has been signed off. Some speculate this may indicate a reluctance to take on the financial liabilities that would put the government's credit rating at risk.[7]

The Hunter's lack of a proper legal framework for mine closure and slow progress on rehabilitation is a serious and urgent problem: vast swathes of the Valley landscape will need to be rehabilitated and restored in the coming years. We need robust laws to make sure this happens, and to ensure that Hunter communities and NSW taxpayers are not left responsible for the clean up after the industry disappears.

Strong, effectively enforced rehabilitation rules will not only curtail the impacts of mining but create new opportunities for economic development and wildlife conservation on restored lands. Increasing the level of rehabilitation and active land management and extending this to buffer lands could deliver 670 full time jobs to the Hunter. If renewable energy precincts are added to the scenario then the jobs figure would increase to 13,600 with a $3.7 billion boost to the local economy in the next two decades.[8]

RECOMMENDATIONS

A – Set legal obligations to prevent mine operators from leaving final voids that will become perpetual hazards to human and environmental health

Over 25 final voids have been approved to be left across the Hunter.[9] We estimate these unfilled mining holes will have a combined surface area the size of Sydney Harbour, but will be much, much deeper. Modelling predicts that each void will take hundreds, even thousands of years to reach hydrological equilibrium, with each destined to become a contaminated super-saline lake.[10]

Some suggest that these sites might become nice recreational water parks, or dirt bike tracks, or renewable energy stations, but experts and local authorities warn that the Hunter's voids will become perpetual hazards to human and environmental health, needing active management long after the mining companies have gone.[11] As Muswellbrook Council has said "Voids are not a naturally occurring element in the landscape, so planning to retain a void is planning to create an irreversible and permanent negative change to the environment."[12]

We cannot afford to entertain magical thinking about the risks posed by the Hunter's mining voids. It may not be feasible to fill every void, but nor is it fair or acceptable to let mining companies leave a landscape-scale toxic burden for Hunter residents to carry in perpetuity. The NSW Government has no plan to avoid this outcome, and it urgently needs to make one. This plan needs to be driven by research and enforced by law.

B – Increase and enforce penalties for failure to meet progressive rehabilitation commitments

Rehabilitation laws are only as good as their enforcement. The maximum fine a NSW mining company could face for breaching rehabilitation laws is now $1.1 million.[13] It must be questioned whether the penalties are adequate given that profits gained during the life of a mine (typically 15-30 years) far outweigh the maximum penalty that can be imposed.

In a 'Compliance Blitz' undertaken in June 2019 the NSW Resources Regulator found that four large mining operations in the Hunter were in breach of their rehabilitation obligations.[14] The mines were not charged or fined. In fact, no single Hunter Valley mine has ever been convicted and fined for a rehabilitation offence.[15] Where mines elsewhere in the state have been, the fine has been a fraction of the maximum penalty. This is because the NSW Government policy is to issue orders to the company requiring it to fix the problem rather than impose fines.[16]

The new progressive rehabilitation laws that came into force in 2022 are an improvement on the old regime, but the efficacy of the laws depends on the goodwill and honesty of mining companies. Mines set their own rehabilitation targets, audit their own progress towards achieving those targets, and are expected to self-report any non-compliances to the regulator.[17] For example, the legislation requires mines to rehabilitate disturbed land "as soon as practicable", but what that means in practice is largely left for the mining company to determine.[18]

To give Hunter residents more confidence that mines are complying with rehabilitation laws, the penalties for failure must be substantially hiked, and assiduously enforced. Otherwise the financial risk attached to breaching rehabilitation laws is lower than the costs of complying.

C – Establish an independent Centre of Excellence in the Upper Hunter to research, develop, and demonstrate best practice standards for mine rehabilitation

The state of NSW has a critical knowledge and skills gap in mine rehabilitation that urgently needs bridging.[19] The responsible closure, rehabilitation, and relinquishment of a single mine is a complex undertaking that has never been done here before. In the next 20 years it will need to be done on a landscape scale, but even the experts admit that there is "currently a lack of knowledge and adequate research about the likely success of ecological mine rehabilitation" for even a single Hunter mine.[20] This is a big problem, but it can be turned into a big opportunity.

The Hunter Valley is ideally placed to become a global leader in post-mining landscape restoration: solving an urgent global challenge while establishing a valuable new industry with exportable skills in the region. The NSW Government recognises that opportunities for regional development are unlocked when industry, government, and universities partner to solve regional problems and become "leaders in niche fields".[21] A Centre of Excellence could make this happen in the Hunter, driving targeted research and development into the land restoration methods that work best, and training a workforce to do the job. The Centre might utilise former mine site infrastructure that would otherwise be decommissioned, or could be based at the currently underused Muswellbrook campus of the University of Newcastle, which is already a research leader in contaminated land remediation.[22] If done well, a program like this could provide new opportunities for local people to be trained and employed in regenerative industries.

Continues over

Case studies

Germany's Ruhr Valley illustrates the transformative potential of long-term government planning and investment in the successful restoration and transition of a mining region. The federal government oversaw a $20 billion program to clean up an archipelago of abandoned mine sites while employing tens of thousands of former miners in the process.[23] This was implemented through legislation under the *Structural Strengthening Act for Coal Regions* in 2020.

The Huntley and Willowdale bauxite mines in southwest WA show what can be accomplished when mine closure is integrated into life-of-mine management. By early allocation of enough human and financial resources, these mines have been able to reestablish the full diversity of plant species that previously occupied mined areas.[24]

In contrast, the Rum Jungle uranium mine in the Northern Territory shows that when mine closure is not well planned or regulated, the consequences can linger for decades and cost taxpayers billions. The mine closed in 1971, and since then governments have had to continually fork out large sums of public money attempting to remediate the site. More than 50 years after the mine closed, it is still harming the environment, and still costing taxpayers money.[25]

D — Increase security bonds to cover the true cost of rehabilitating each mine

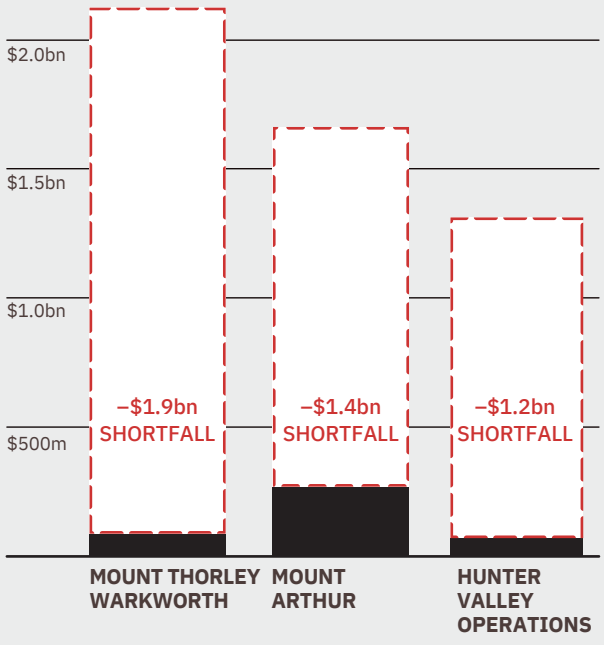
The rehabilitation security bond system, established by the *NSW Mining Act*, is supposed to ensure that mines' rehabilitation obligations will be fulfilled at the mining company's expense, even if it goes bust.[26] While the *Act* doesn't require it, government policy states that the value of the deposit must equal the estimated full cost of rehabilitation.[27] That's a good policy that should be a law, but either way it only works if the costs are accurately estimated and there's enough money secured to pay for the work that needs doing.

The Resources Regulator has overseen a significant hike in security bonds over recent years, after recognising the kitty was deficient. This is a welcome change, but the bonds are still too low in value and the system is too reliant on estimates provided by mining companies, as confirmed in a 2017 assessment by the NSW Audit Office and more recently by the Australia Institute.[28] This makes it clear that the *Mining Act* should be amended to provide a strict requirement that security bonds account for the full potential costs of rehabilitation and ongoing management.

The bond system needs to be overhauled to make sure that mining companies foot their own clean-up bills. Cost estimates must be made by independent experts, and be designed to ensure the full risk of unforeseen costs is borne by the mining company.

SECURITY BOND SHORTFALL: TOP THREE

Bonds currently secured by the government (black shading) are dwarfed by both estimated shortfalls (white outlined with dashed red lines) and required totals (whole columns). Figures: Lock the Gate[29] and The Australia Institute.[30]



WHAT THE COMMUNITY SAYS

"There needs to be regular reviews of the consent conditions that bring rehabilitation practices up to the current standards as the mines age. They can't rest on an approval that's ancient."

"The land has been completely stripped of its beauty and needs to be restored for the people and the environment, for the good of our flora and fauna, making our land safe, healthy, and beautiful again."

"$1.1 million is like a drop in the bucket to the bigger mines, so make it something that's gonna worry them if they breach anything. $1.1 million is only half a train load of coal isn't it?"

"We need a research centre to develop standard practices, and we need it to be in the centre of the mines. What's the point of having it elsewhere?"

"Mining companies have frequently walked away from repairing the damage that they cause."

"Mining companies shouldn't be allowed to have a free pass at everything, and get as much funding via subsidies as they do from the government."

A closer look at security bonds and royalties

Security deposits

The NSW Government determines how much it will cost to rehabilitate each mine based on estimates provided by coal companies. These estimates are based on figures submitted by the mining companies using a tool provided by the NSW Resources Regulator. Companies lodge a security deposit (in practice, a bank guarantee)[31] for the agreed amount which is used to pay for rehabilitation if the mining company defaults. Companies can apply for a part refund of their deposit if they complete rehabilitation in a section of their mine. Once they demonstrate rehabilitation has achieved the approved final landform to the satisfaction of the Regulator, the full security deposit will be returned.

The shortfall in rehabilitation security bonds for Hunter mines, and therefore the value of risk shouldered by the public instead of the mining companies, could be as high as $22 billion.[32] The graph on page 10 shows the mines with the three largest shortfalls in security deposits, the largest being $1.9 billion dollars.

In 2017 the NSW Auditor-General recommended security bonds be increased by 25-50 per cent to cover the estimated costs of unforeseen problems.[33] These unforeseen costs are likely to be significant given the unprecedented scale of the rehabilitation challenge in the Hunter, and one thing is certain: the existing scheme is inadequate, and the people of NSW are carrying the risk. That isn't fair or acceptable. Additionally, there are concerns that mines may sell their leases to smaller companies who cannot cover the true cost of rehabilitation.[34] In this case there is significant risk that the financial liability is transferred to the public.

Other Australian states have introduced systems to ensure mining companies finance the risk of long-term unforeseen problems on mine sites after the company has moved on. Whether they have been successful is debatable. The Queensland Government now requires companies to assess the potential cost of 'residual risks' after mine closure, and pay that cost before it is released from its obligations.[35] In Western Australia and South Australia mining companies must pay a non-recoverable annual levy into a common rehabilitation fund.[36] [37] Whilst the Western Australian fund is designed to gradually accumulate, it may take some time to cover estimated rehabilitation costs, and it has failed to encourage operators to undertake progressive rehabilitation.[38] However it is done, the NSW Government needs to ensure that mining companies finance the risk of problems on relinquished mine sites, not the public.

Mining royalties

When it's still in the ground, NSW coal is owned by the people of NSW. Royalties are the price at which we sell our coal to mining companies. Once mines are approved they pay comparatively low royalty rates for the privilege of recovering a valuable public resource. Mining royalties are calculated as a percentage of the market value of the coal, and the NSW rate is very low by international standards, and is a flat rate. This allows mining companies to collect the lion's share of profits when prices are high, leaving the people of NSW with the scraps.

As of last year, the Hunter receives a share of $25 million in annual royalties money provided under the Royalties for Rejuvenation scheme — a fund shared between four coal regions in NSW to start diversifying their economies. That's a fraction of the money necessary to fund a successful post-mining transition. The system needs redesigning to prevent coal companies enjoying windfall profits at the expense of the public. Queensland has done this with a tiered system of royalty rates as high as 40 per cent when coal prices average more than $300 a tonne, such as in 2021-22 when metallurgical coal was priced at $900 a tonne.[39] This reform is expected to bring in additional public revenue to Queensland of around $1.2 billion in the four years to July 2026.[40]

Coal royalties currently make up less than two per cent of NSW budget revenue — less than vehicle registration and taxes,[41] but it could be much higher if the public share of profits from coal were increased. Analysts have estimated, for example, that if NSW were to use Queensland's top rate of 40 per cent, NSW could have recouped an extra $23 billion in royalties last financial year.[42]

02 Regional Planning & Governance

PRINCIPLE

Planning and policy mechanisms will be coordinated to achieve landscape restoration and a just transition for Hunter communities

Mining companies in the Hunter have had a pretty easy run of it. Their mining proposals have been consistently approved by the state government despite often harmful impacts on local people and wildlife, and even entire villages and towns. Moreover, when planning laws have frustrated a project, the laws have been changed.[43] For example, when a mine is deemed a State Significant Development and approved, it is subject to planning conditions that extinguish the public's right to appeal the decision in the Land and Environment Court.[44]

This one-sided affair continues through to the governance and regulation of closure and post-mining land use, which does not adequately consider health, Indigenous affairs, labour and employment, environment, social welfare, planning, and regional infrastructure components — leaving communities vulnerable with limited resources to manage the aftermath.[45] All this must change if the Hunter's transition is to be successfully planned and executed for the benefit of the region. Managing the transition is a vast, complex, long-term challenge that can't be accomplished under current legislation. We need new laws, policies and funding streams that equip our public institutions for the challenge in front of us, and a more holistic way of looking at mine closure.

RECOMMENDATIONS

A – Increase coal mining royalties to fund the Hunter's transition and repair the landscape through long-term ecosystem restoration

Mining companies expect to pay royalties and the Australian government needs to ensure that our mining regions and the country as a whole are being fairly compensated. Governments must avoid wasted opportunities to increase much needed revenue from well-known, long-term sources. In NSW the royalty rate is just 8.2 per cent of the resale value for open-cut mined coal, and 7.2 per cent for underground.[46] That's a flat rate, and it's way too low. By contrast, Queensland has a tiered system to ensure the public gets a share of the profits when coal prices are high, without threatening the viability of mines when prices are low. In Norway, oil companies pay a 78 per cent income tax for the privilege of collecting and on-selling a valuable public resource.[47] In NSW we've been practically giving ours away, and now is the time to stop being so generous.

The Hunter's successful restoration and transition is a complex and long-term public project that needs significant funding to succeed, and it's only fair that mining companies foot the bill. Royalties must be substantially hiked to pay for the region's transition. In 2022 coal companies made record profits. Glencore, for example, more than doubled its profits to $18.9 billion in the first half of 2022.[48] By lifting royalty rates across the board, and especially when coal prices are high, the NSW Government can raise the billions that are needed to ensure the Hunter's restoration and transition is well-executed.

B – Create an independent Hunter Rehabilitation and Restoration Commission to develop a landscape vision for the region, coordinate restoration, and enforce best practice standards for mine rehabilitation and closure

It's widely accepted that the closure of large mines must be coordinated for years in advance to secure environmental, social, and economic benefits.[49] This uncontroversial principle is shared even by the NSW mining lobby.[50] The problem is that frameworks for closure in NSW are only for single mines, not an entire mining region. As 17 mines close down in the next two decades, closure must be coordinated to achieve the best results for the people of the Hunter. The direct impacts of Hunter mining occur on a regional scale,

and the Valley's restoration needs to be coordinated to a regional plan.

The NSW Government has been advised that its public servants and the mining industry lack the knowledge and coordination necessary to manage the Hunter's transition to post-mining land uses, and that the government should consider creating a public authority to oversee mine rehabilitation.[51] Vesting power in a public authority to coordinate mine closure and relinquishment and ensuring it is done to the highest standard is a practical and effective approach that has been adopted elsewhere, such as in Victoria's Latrobe Valley. It should be adopted here in the Hunter close to the mines, and could work alongside the proposed Hunter Valley Transition Authority.[52]

A Hunter Rehabilitation and Restoration Commission must be independent of politics and assured of the resources and powers it needs to do its job — this needs to be guaranteed by statute. When mine rehabilitation and closure is badly managed it costs more money and fails to achieve positive outcomes.[53] Successful mine closure requires a long-term commitment of financial and human resources far greater than has yet occurred for any mine in Australia.[54] This is too important to be left to chance.

C – Use disturbed land closest to infrastructure for new industry to limit additional impacts on communities and the environment

The NSW Government is negotiating with Hunter mines about future industrial uses for their sites, including non-mining buffer lands.[55] It is also looking at changing planning laws and regulations to facilitate new developments on mine-owned land.[56] Mining companies and other stakeholders have told the government that buffer lands might be easier and preferred locations for new development rather than mined land because of current lease restrictions.[57] If allowed, this will reduce the ability to restore biodiversity across the region. We cannot allow the Hunter's post-mining transition to be planned by the mining industry, in its own interests, behind closed doors. We need a public plan, informed by clear policy principles that limit the negative impacts of new developments on people and the environment.

A simple and effective first step is to ensure that all new developments are limited to previously-disturbed areas. Heavily impacted land on mining titles could be used for strategically located clean industrial development, for example, the Renewable Energy Precincts that were modelled by consultancy Ernst & Young for post-mining land use development.[58]

WHAT THE COMMUNITY SAYS

"The Rehabilitation Commission is a great idea to make an umbrella of coherent rehabilitation principles that all efforts can be evaluated against. The region needs more clear and specific long-term goals, and it would be great to have a planning body that organises and publicises these goals."

"We shouldn't underestimate the size of the task and true cost and effort of rehabilitation of multiple large mines over decades. This is an opportunity to repurpose the land and the physical and social infrastructure."

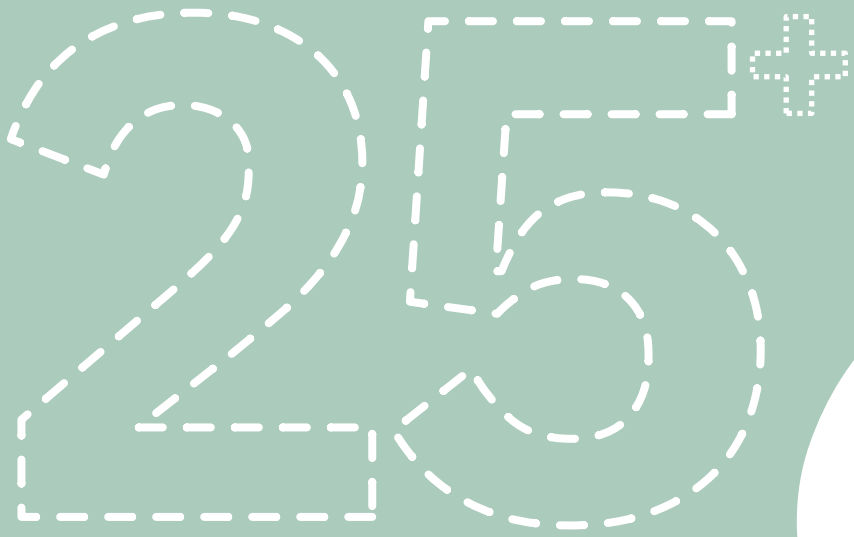
Case studies

In the 1980s, Germany's Ruhr Valley was economically depressed and heavily polluted following the downturn of the region's coal and steel industries. Under the direction of regional planning authorities, which worked closely with research bodies and local communities, the region was successfully transformed into a national centre of environmental industries, research, and development. The redevelopment project included reskilling the industrial workforce for employment on the large-scale ecological restoration of the Emscher River.[59]

In 2020 the Victorian Government established the Mined Land Rehabilitation Authority and tasked it with coordinating and implementing a regional rehabilitation strategy for the Latrobe Valley. The authority is empowered to acquire land; to audit public agencies and mining companies to ensure they are complying with the rehabilitation strategy; and to charge mining companies for the costs of cleaning up their sites. It is required to do its work transparently in consultation with local communities, and can recommend changes to laws and regulations.[60]

The Western Australian Government has committed over half a billion dollars to a just transition plan for the Collie region, which is undergoing a managed phase-out of its black coal industry. The money will be used to attract new jobs and industries to the region, as well employing local people in the clean-up and decommissioning of the town's power stations.[61]

The numbers



Number of approved voids to be left (roughly the area of Sydney Harbour).[62]

Percentage of Valley floor between Broke and Muswellbrook covered by mining leases. This is equal to 1,280 square kilometres.[63]

64%

$3.3 billion

Amount of money currently held in security bonds by the NSW Government.[64]

Shortfall between currently held security bonds and estimated actual cost of rehabilitation, including voids.[65]

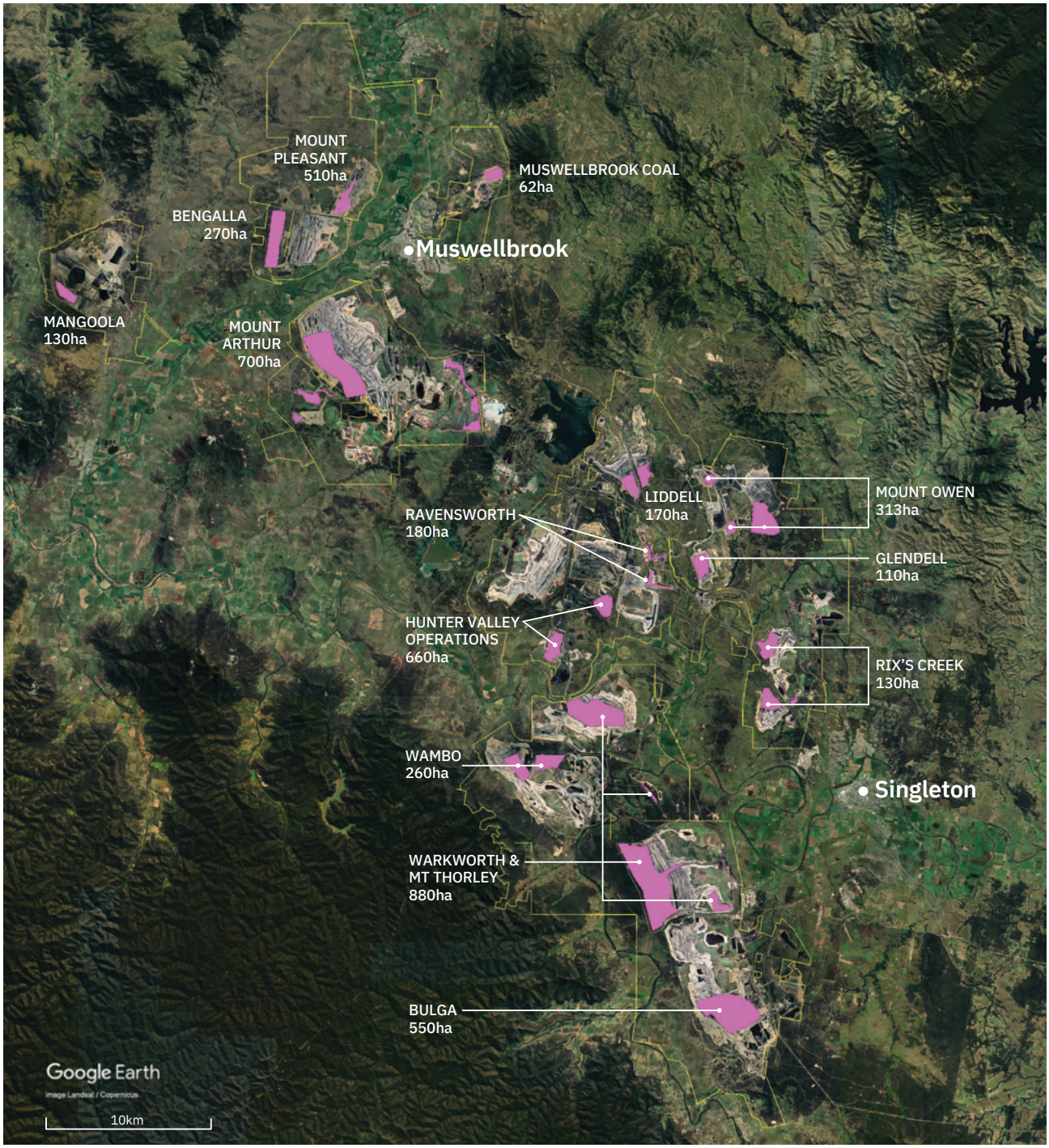
$22 billion

88.5+ billion litres

Estimate of annual water consumed by Hunter Valley coal mines.[66]

Sources for these figures are listed at the back of this report.

Hunter coal mines and final voids



This map indicates the final voids that have been approved to be left by the NSW Government (solid purple shapes). It also shows the mine leases/titles (yellow outlines).

This map was created by Lock the Gate Alliance in 2022 using Geographic Information System (GIS) mapping from data available at the time. The background satellite image is from 2020. There have been some changes to the mines since this time.

SOURCES: Void estimates in hectares all from Walters (2016)[67] excepting Wambo (Deloitte, 2020),[68] and Mount Pleasant (NSW Government, 2015).[69] Background map via Google Earth created 20/12/2022. Camera 114km 32°31'09"S 151°01'56"E.

The Hunter Restoration Blueprint

This Blueprint sets out principles and recommendations for policy and planning related to post-mining lands. These steps will provide a more stable foundation for the Hunter Valley's transformative next phase.

01

Rehabilitation & Landscape Restoration

Mine-owned lands will be restored to support biodiversity and regenerative industries

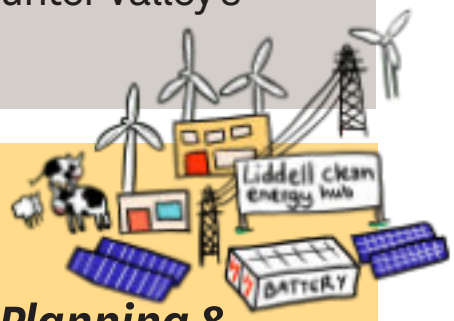
A. Set legal obligations to prevent mine operators from leaving final voids that will become perpetual hazards to human and environmental health

B. Increase and enforce penalties for failure to meet progressive rehabilitation commitments

C. Establish an independent Centre of Excellence in the Upper Hunter to research, develop, and demonstrate best practice standards for mine rehabilitation

D. Increase security bonds to cover the true cost of rehabilitating each mine

02



Regional Planning & Governance

Planning and policy mechanisms will be coordinated to achieve landscape restoration and a just transition for Hunter communities

A. Increase coal mining royalties to fund the Hunter's transition and repair the landscape through long-term ecosystem restoration

B. Create an independent Hunter Rehabilitation and Restoration Commission to develop a landscape vision for the region, coordinate restoration, and enforce best practice standards for mine rehabilitation and closure

C. Use disturbed land closest to infrastructure for new industry to limit additional impacts on communities and the environment

03

Community

The needs, expectations, and values of Hunter communities will be at the centre of post-mining land use planning

A. Mandate greater community involvement in post-mining land use planning

B. Ensure new developments benefit Hunter communities for the long-term through prioritisation of local jobs and mechanisms such as community ownership and profit sharing schemes

C. Create a public information hub showing maps and details of current rehabilitation plans and progress, closure plans, and post-mine development proposals

D. Increase funding to TAFE for new courses that train local people for jobs in regenerative industries

04

First Nations

Traditional owner responsibilities to Country and Indigenous knowledge will play a greater role in restoration of mining land and future land use planning

A. Support the return of mine-owned land, especially unmined buffer lands, where sought by Traditional Owners

B. Engage Traditional Owners in decision-making and planning for new projects on mining lands, from the outset

C. Prioritise employment for local Indigenous people in land use restoration and rehabilitation projects

05

Climate & Environment

Restoration and reuse of mining lands will be consistent with achieving a safe and stable climate

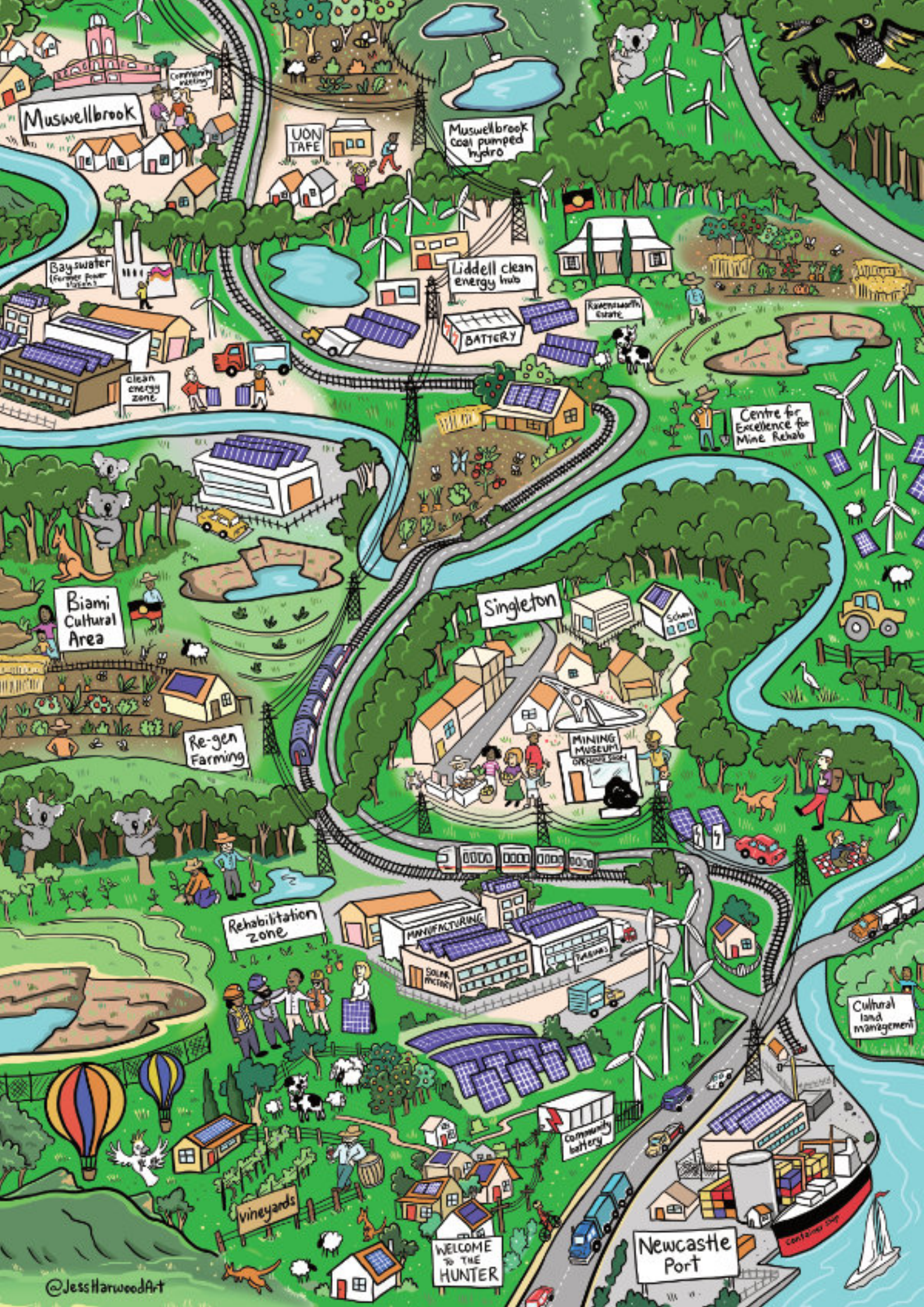
A. Set caps on carbon emissions and water use on all current mining activities and future developments on mining lands

B. Establish a region-wide biodiversity corridor system that includes rehabilitated mined lands and restored buffer lands

C. Prioritise the restoration of waterway ecosystems on post-mining land

About this Blueprint

These recommendations have been formed through community engagement and expert consultation coordinated by the Hunter Renewal Project.


Muswellbrook
Community meeting
UON TAFE
Muswellbrook coal pumped hydro
Bayswater (Former Power station)
Liddell clean energy hub
BATTERY
Kaerwerth Estate
clean energy zone
Centre for Excellence for Mine Rehab
Biami Cultural Area
Singleton
School
MINING MUSEUM
Re-gen Farming
Rehabilitation zone
MANUFACTURING
SOLAR FACTORY
Cultural land management
Community battery
vineyards
WELCOME TO THE HUNTER
Newcastle Port
Container Ship
@JessHarwoodArt

03 Community

PRINCIPLE

The needs, values, and expectations of Hunter communities will be at the centre of post-mining land use planning

The communities of the Hunter have the most at stake in the restoration of the region's landscape and the transition of its economy. If the transition is to be managed fairly and its opportunities fully realised, Hunter communities will need to be effectively involved at every step of the way. Up until now, the model of planning and development applied in the Hunter has prioritised commercial interests at the expense of the needs and aspirations of local communities.[70] The post-mining transition is the Hunter's opportunity for a fresh approach — a new model of planning and development that gives local people real power in shaping the region's future.

RECOMMENDATIONS

A – Mandate greater community involvement in post-mining land use planning

The entire Hunter region is about to experience an enormous transformation. The people that will be most affected will be the populations of large towns like Muswellbrook and Singleton where almost everyone is linked in some way to the coal industry. The problem is there is no legal framework to ensure these communities are meaningfully involved in planning the closure of mines and post-mining developments. That needs to change.

Governments and mining companies around the world acknowledge that successful mine closure and relinquishment requires that affected communities and stakeholders are meaningfully involved in every stage of planning and implementation.[71] Indeed, the international standard for mine closure requires that affected stakeholders are involved in planning for post-mining transition over the whole life of a mine.[72] Our governments are failing to provide for the community's right to take part in decisions that affect them. A 2022 assessment by the Environmental Defender's Office for the Wilderness Society found that the government tends to make planning decisions in favour of proponents of large-scale developments.[73] They assessed that the community's right to be meaningfully involved in decision-making, and their right to challenge planning decisions are woefully inadequate.

Early, meaningful, and continual public engagement must be central to the transition so that local people have real power to affect outcomes.[74] Using local knowledge about local issues makes for successful development projects.[75] When expert knowledge is augmented by local knowledge, the evidence for decisions is richer and choices become less risky. In the past, development in the Hunter has been planned behind closed doors, and communities only 'consulted' on decisions that have already been made. The post-mining transition is the chance to turn this around, with new planning laws that put communities first.

B – Ensure new developments benefit Hunter communities for the long-term through prioritisation of local jobs and mechanisms such as community ownership and profit sharing schemes

For too long the Hunter has been viewed as a cash cow: a resource from which to extract wealth. This model of development has been to the great detriment of Hunter communities and their environments. It has left them dependent on an industry that benefits some more than others. Muswellbrook's unemployment, for example, is more than twice the state average,[76] indicating that mining is not benefiting everyone equally. Economic development does not need to come with such social and environmental costs. With a new model of planning, the Hunter could turn these costs into benefits, while bringing money and new jobs to the region and keeping them here.

To its credit, the NSW Government has made steps toward the development of a 'social enterprise' strategy for the region.[77] Such enterprises are

LEFT: Artist's impression of a renewed Hunter Valley. By Jess Harwood.

business models that prioritise social needs and environmental restoration over financial profits. They do not run at a loss — in fact they often outperform purely commercial enterprises — but profits are not the objective, and any surplus is reinvested in line with social and environmental goals. Social enterprises return profit to the public purse and have been shown to be a "cost-effective way for governments to co-invest in community-led social change and economic transition, with [a] return [on] investment". [78]

A social enterprise strategy is just one way to ensure that the Hunter's economic transition is used to solve social and environmental problems. Planners need to work with people in the region to develop the mechanisms that will meet local needs and desires. Strategies that have been proposed or adopted elsewhere range from simple adjustments like mandating local employment,[79] requiring developers to fund public infrastructure projects,[80] to more root-and-branch reforms such as community ownership of infrastructure and developments.[81] All options that benefit the community should be on the table.

C – Create a public information hub showing maps and details of current rehabilitation plans and progress, closure plans, and post-mine development proposals

To enable the public to have meaningful involvement in the Hunter's transition, information needs to be not only available but accessible. The current system benefits those who can navigate its complexity or pay for assistance. Open and transparent access will level the playing field.

People need to know how to access plans and proposals, be able to understand them, and know how to get involved in the planning process. Information must be available in a variety of formats to suit people with different needs, and must be updated regularly. Due to the sheer number of anticipated projects for Hunter mine closure and rehabilitation, land restoration, and post-mining development, these plans need to be collated and accessible from a single, user-friendly hub.

By maintaining a public register of these proposals, we can ensure that knowledge gained during one mine closure can be available for other projects. This will foster a collaborative approach to post-mining land use that has the support and involvement of local communities.

D – Increase funding to TAFE for new courses that train local people for jobs in regenerative industries

Although there has been a recent funding increase for the vocational education sector at the federal level,[82] the foremost skills and training institution of NSW, TAFE, has been starved of resources for decades.[83] Funding cuts have seen courses scrapped, teacher hours increased, and opportunities for new students reduced.[84] The TAFE system needs to be rescued to give workers in the Hunter the opportunity to springboard into new industries with long-term prospects.

The NSW Government knows that diversifying the Hunter economy means reskilling the region's workforce.[85] Hunter workers want these skills: they have asked for new TAFE campuses and a course program that equips local people with the industrial skills for the twenty-first century.[86] The landscape restoration and renewable energy industries are desperate for new workers.[87] There are many exciting new careers to be made as the Hunter transitions, but only if the right skills and training infrastructure is in place. The NSW Government needs to commit to revitalising the TAFE system to train the Hunter's transition workforce.

WHAT THE COMMUNITY SAYS

"The mines have privatised all the profits and socialised all the costs, and then they also want to decide what to do with the land afterwards. As a community we have to say, 'NO! We want to be involved from the beginning as equals.'"

"Information is important at this stage to educate us on a forward plan. We've had enough backward looking and we just need to have some sort of an idea on what we should expect from them."

"The most important thing to consider is engagement, particularly if it can be a different method of engagement: getting the real views of people and being collated in a way that might have some impact on the longer term future".

Bringing community into planning for the future

Whilst the NSW Government believes in principle that the community has a right to participate in planning decisions, there is little in the way of legislated conditions for how participation should proceed,[88] and successive legislative changes have actually reduced the public's ability to play a meaningful role in environmental decision-making.[89] Amendments made in 2019 to the *NSW Environmental Planning and Assessment Act 1979* were designed to increase community participation,[90] yet these include more non-binding principles than mandatory requirements. One of the few mandatory requirements is that development proposals must be exhibited for 28 days at a minimum with proponents then required to specify how community views were taken into account when amending their applications. Giving the public just 28 days to respond to complex development proposals seems hardly reasonable, particularly when the proponents have often had years to prepare their proposals.

Whilst not a comprehensive reform strategy, some have suggested that legislative instruments need to contain clearer identification of how community input should be used in decision-making, and that independent bodies are used to review procedural implementation of participation, evaluate progress, and make recommendations for improvement.[91] The Wilderness Society, for example, has recently called for the rights of the community to participate in environmental decision-making to be enshrined in law.[92] They, along with others,[93] recommend that the right for the community to say no to a project be legislated. This would go some way to ensure that the community feels they have some agency in shaping their worlds.

Social impact assessments

During the mining boom, projects were developed and approved with no formal regulatory framework or guideline for how to assess and evaluate social impacts. This had devastating effects on communities across the Hunter, with severe impacts on both individual livelihoods and community bonds. In 2017, the NSW Government released the *Social Impact Assessment Guideline for State Significant Mining, Petroleum Production and Extractive Industry Development*, updated in 2021 to cover all State significant projects.[94] Now when projects are being assessed for development, proponents must create a Social Impact Assessment (SIA) as part of the Environmental Impact Statement.

The SIA aims to place people at the centre of assessment, considering various social elements of value to people, including way of life, community, accessibility, culture, health and wellbeing, surroundings, livelihoods, and decision-making systems. This standardised approach seeks to build better relationships between proponents and community and reduce risks through early and open engagement.

Whilst the *Guideline* has offered proponents, communities and practitioners an important framework to ensure social impacts are identified, evaluated, and responded to in a comprehensive and rigorous manner, the process of SIA remains flawed and the question of mine closure and legacy is dealt with lightly from a social impact perspective. Employment and economic growth have been highlighted as social benefits that have outweighed other social components central to people's way of life.

There are gaps in the *Guideline* itself with, for example, climate change and human rights excluded as priority items for assessment. The SIA process itself is framed around a presumption of approval for individual projects, and the ongoing and cumulative impact of coal mining is often missed. Moreover, the Department remains vastly under-resourced in relation to social impact assessment, meaning that, when undergoing departmental review, SIAs are very rarely subject to the holistic and cross-sectional social scientific evaluation that best practice calls for. The *Guideline* thus fails to recognise the significant temporal impacts of mining that go hand-in-hand with the material implications and impact on environment, surroundings and sense of place.

04 First Nations

PRINCIPLE

Traditional Owner responsibilities to Country and Indigenous knowledge will play a greater role in restoration of mining land and future land use planning

The Wanaruah/Wonnorua people have sustainably managed Hunter Valley ecosystems for countless generations, but since colonisation First Nations people have been locked out of the management and development of the region. The consequences have been devastating for the landscape and the livelihoods of Traditional Owners.

Targets set as part of the *National Agreement on Closing the Gap* aim to reduce systemic inequality for Aboriginal and Torres Strait Islander people in areas such as employment, housing, education and health.[95] Whilst there have been some small improvements to these indicators, there is still much work to do. In the Muswellbrook Local Government Area for example, the median income of Aboriginal adults during the last Census period was 22% less than that of all other adults in the area.[96] Whilst this has risen since the last Census, Aboriginal people are still less likely to be in management positions than non-Aboriginal people meaning access to decision-making arenas is restricted.

The Hunter's transition from coal is an opportunity to make amends for the harm done to the land and its people. It's time for a new model that centres First Nations peoples' knowledge and aspirations in the planning and management of the Hunter landscape.

Case studies

The closure of the Argyle diamond mine in Western Australia demonstrates the benefits that can flow to Aboriginal and/or Torres Strait Islander people when mining companies work closely with First Nations groups in the planning and management of mine closure and land restoration. The Gelganyem Trust was a lead actor in all stages of planning, closure, and rehabilitation, and the project provided employment and transferable skills to First Nations people while allowing them to work on Country and care for it.[97]

Yanama Budyari Gumada Collective is a collaboration between Darug custodians, NSW National Parks and Wildlife Service as well as Macquarie and Newcastle universities. Together they are bringing together different knowledge systems aimed at healing the land and revitalising environmental stewardship processes.[98] The rejuvenation work is focused on the Yellomundee Regional Park in the Blue Mountains using cultural burns and Darug-led culture camps. Children are involved in the process as a means of transferring knowledge. The project won a 2020 National Trust Heritage Award.

RECOMMENDATIONS

A – Support the return of mine-owned land, especially unmined buffer lands, where sought by Traditional Owners

The closure of mines in the Hunter provides the opportunity for the state government to make good on its commitment to facilitate the return of ownership of land to First Nations groups.[99] Returning some mine-owned land, especially unmined buffer land, to First Nations ownership would deliver real and continuing benefits to Wanaruah/Wonnorua people and contribute to the surviving and thriving of Indigenous cultures.

Returning land would require changes to legislation as at present there are no requirements to include Indigenous people in end-of-mine planning or post-mining land use decision-making.[100] Timely processing of land claims would also assist First Nations groups to benefit economically and culturally from any mine-owned lands that are relinquished to the Crown.[101]

B – Engage Traditional Owners in decision-making and planning for new projects on mining lands, from the outset

Tokenistic 'consultation' with First Nations groups does not lead to good outcomes for Aboriginal and/or Torres Strait Islander people or their cultures, as the

recent history of mining development in the Hunter Valley has shown.[102] The region's transition from mining must mark the beginning of a new approach to planning and development built on genuine collaboration with First Nations groups.

All new developments in the region should have the free, prior, and informed consent of First Nations groups, which is a far more meaningful and continuous process than mere 'consultation'. The importance of these principles is widely acknowledged,[103] and the Hunter's transition is the time to implement them. In line with a key action item of the *National Agreement on Closing the Gap* regarding shared decision-making,[104] all affected First Nations groups should be brought into development planning early in the process, given a real say in the development and management of new land projects, and supplied with the resources to undertake these responsibilities.[105]

C – Prioritise employment for local Indigenous people in land use restoration and rehabilitation projects

The restoration and redevelopment of the Hunter Valley is an opportunity to deliver quality well-paid jobs enabling Aboriginal people to work on Country, and care for it. This is particularly important for areas where mining has happened against the wishes of Traditional Owners.[106] Increasing Aboriginal economic participation is a stated objective of the NSW Government,[107] and increasing skills in the industries of the future is a key *Closing the Gap* objective.[108] Drawing upon Indigenous ecological knowledge will enhance rehabilitation outcomes,[109] and create ongoing employment pathways for Aboriginal people.

Assured funding will create sustainability of employment and restoration programs. The work could encompass rehabilitation work and ongoing environmental monitoring after closure. For example, developing closure criteria based on cultural considerations through the employment of Traditional Owners can provide a means to direct the technical efforts of rehabilitation,[110] and would ensure that intellectual property rights contained in this traditional, ecological knowledge is retained by First Nations peoples.

Collaborations between First Nations groups could also be funded to develop land restoration programs on a regional scale rather than a mine-by-mine approach. Direct programs such as Indigenous Rangers provide environmental, cultural, and economic benefits to Aboriginal people and the wider community, but at present there is only one federally-funded program in the Hunter — the Worimi Green Team. Fee-for-service contracts can supplement this work through local-level agreements between Indigenous landowners, mine lease holders, and all levels of government, but skills need to be developed within Indigenous groups to boost this type of employment in the Hunter. The state government could, for example, fund local Indigenous people to take the new Certificate III in Mine Rehabilitation. Mine owners could also be encouraged to add clauses to their procurement guidelines that provide opportunities for Aboriginal-owned businesses from the local area.

WHAT THE COMMUNITY SAYS

"There is so much to be gained in recognising and understanding the land management practices of the local Aboriginal people, based on 60,000 years of observation and science dealing with the oldest continent on the planet."

"Involve the Traditional Owners at all stages as they have the whole-of-community in mind. Mines only have money in mind."

"Aboriginal people don't have any input. The Government and the Mining Minister have the first and last say on where these mines are. This has an impact on songlines, storylines, and areas of cultural significance. The Minister has to listen to Traditional Owners and knowledge holders and young community people as this is their future."

"Give the land back to First Nations people that was stolen from them originally."

05 Climate & Environment

PRINCIPLE

Restoration and reuse of mining lands will be consistent with achieving a safe and stable climate

The global transition from fossil fuels to renewable energy is driven by the broad recognition that climate change is happening rapidly and poses a profound threat to humans and wildlife. Mining companies and successive state governments have known for decades that selling Hunter Valley coal is changing the climate, but have downplayed the urgency of the crisis. Now climate change is closing in on the Hunter, and must be tackled immediately and head-on. New developments should aim to reposition the region as a leader in climate solutions, and prepare it for unavoidable climate disruption.

RECOMMENDATIONS

A – Set caps on carbon emissions and water use on all current mining activities and future developments on mining lands

When we speak to Hunter Valley residents they stress the importance of coal to the economic stability of the region, but also understand that the industry is bad for the climate and their health. The NSW Government has pledged to achieve net zero emissions by 2050, but this doesn't include greenhouse emissions from exported coal, which are nearly four times higher than the domestic emissions accounted for in the state's net zero target.[111] As courts in NSW and Queensland have concluded,[112] it makes no sense to reduce carbon emissions at home while fuelling them abroad. But it is not for the courts to set climate policy: the NSW Government must commit to reducing its total climate impact, including from coal exports. The industry should not be allowed to expand at a time when the Hunter has a transition to get on with, and the NSW Government has committed to taking meaningful action on climate change.

Downstream emissions from overseas power stations are the biggest climate impact of the Hunter's coal mines, but not the only one. Each mine contributes directly to greenhouse pollution through fugitive emissions from coal seams, diesel fuel use, and power consumption. NSW law does not currently require mines to comprehensively account for these emissions,[113] but by some estimates the climate impact of direct emissions from Hunter mines is equivalent to the CO_2 emissions from driving five million cars for a year.[114] An effective strategy to reach net zero emissions in NSW must also limit and reduce direct emissions from coal mining.

The serious and ongoing water impacts of Hunter mining are not limited to the direct removal of streams and aquifers, or the prospect of perpetually hazardous void lakes. As the climate becomes more extreme, water security will be increasingly unpredictable. The NSW Government acknowledges that communities need secure water supplies,[115] yet the coal industry's domination of the Hunter water market drives up prices for other users and threatens the viability of other industries. A 2014 study found that coal companies owned 55 per cent of high security water licences — up to 95 per cent on some sections of the Hunter River — and used almost 90 billion litres of water per annum.[116] Coal operations, for example, require substantial volumes of water to wash and prepare coal and to suppress dust emissions.[117] The coal industry has taken the Tiddalik's[118] share of Hunter water up till now, and that needs to stop.

B – Establish a region-wide biodiversity corridor system that includes rehabilitated mined lands and restored buffer lands

The Hunter region is home to 27 endangered ecological communities, eight endangered plant and animal populations, and there are 236 species of plants and animals in the region listed as threatened with extinction.[119] Plants and animals need connected ecosystems that allow them to move, adapt, and survive.[120] As weather patterns change and temperatures rise with climate change, we will see an even greater patchwork of isolated conservation areas, contributing to widespread extinctions.[121]

It is a widely accepted principle that biodiversity areas must be connected into a network. This has been

adopted by the NSW Government in its *Hunter Regional Plan 2041*. But the government's regional corridor plan which stretches from the Manning Valley in the north through to Morisset in the south and Merriwa in the west has a missing middle — the Central Hunter.[122] This is the heavily-cleared heart of the Hunter mining industry, where for decades mines have been permitted to destroy rare and endangered native ecosystems based on dubious promises to offset the damage elsewhere (see page 27 for more detail on biodiversity offsets).

The mining industry must not be let off the hook — it must rebuild a connected biodiversity corridor across the valley floor, lest it become more of a biological desert. This must be part of a region-wide conservation strategy, implemented by the Hunter Rehabilitation and Restoration Commission (recommendation 2B in this report). The Hunter's transition from coal is an opportunity to set up a conservation system that will give the region's native species a fighting chance in a warming world.

C – Prioritise the restoration of waterway ecosystems on post-mining land

Mining leases occupy nearly 65 per cent of the Valley floor between Broke and Muswellbrook.[123] Each mine has profound and permanent impacts on waterway ecosystems: destroying aquifers, diverting streams, and connecting deep saline water with freshwater in the Hunter River.[124] By removing aquifers and redirecting groundwater flows, each mine causes a permanent loss of base flow to the river, and the cumulative effect of this across the region has never been assessed by government or industry.[125] The more than 25 final voids approved in the Hunter are designed to become permanent groundwater sinks, drawing in saline water and concentrating salt and contaminates for hundreds of years.[126]

The effects of mining on waterways in the Hunter are severe and everlasting; it is therefore fair to insist that mining companies undo the damage. The future of the Hunter's sustainable industries and its native wildlife depends on healthy waterways. The regeneration of waterway ecosystems must be a key objective of the Hunter's transition and restoration strategy, especially if this land is ever to support new, productive and regenerative agricultural industries.

WHAT THE COMMUNITY SAYS

"There should be no new mine approvals or extensions, and we must increase royalties to fund the Hunter transition. First we have to stem the bleeding, then try to fix the problem."

"Rehabilitating the land to ensure biodiversity is restored is the most important thing to ensure the native plant species can grow back and allow the native animals to return. We need to restore the land to try and reverse the human impacts on the site as much as possible."

"Connected wildlife corridors and enhancement of ecological habitats is key to balance conservation and development. These corridors should be agreed upon and a region-wide carbon sequestration project explored to gain carbon credits that support ongoing restoration action."

Case studies

The Scottish Government has recognised that building climate resilience into regional planning is an essential component of a fair transition from fossil fuels. A goal of the Scottish Transition Commission is to develop "a detailed understanding of long-range climate and water outlooks specific to the region to better inform ... future economic development, industry planning ... [and] land use and water planning and management".[127] This is the type of entity the Hunter needs.

Coal mining in the Hunter Valley has affected groundwater in about a quarter of the region, and the approval of new or expanded coal mines will impact water resources further, including large changes in the flows of streams and rivers. The Federal Government's *Hunter Bioregional Assessment* [128] examined the expected impacts of the extra mining and found that extending mining operations could be a risk to groundwater-dependent ecosystems such as rainforests, forested wetlands, and wet and dry sclerophyll forests.

A closer look at biodiversity offsets

According to the NSW Government biodiversity offsetting is "based on the theory that biodiversity values gained at an offset site will compensate for biodiversity values lost to development." [129] In practice, however, this approach is facilitating biodiversity decline and pushing species and communities towards extinction. Almost 80 mammal and plant species have become extinct in Australia since colonisation, making us one of the world's worst countries for extinction.[130]

The Biodiversity Offsets Scheme now in force under the *Biodiversity Conservation Act 2016* is intended to be a last resort for unavoidable impacts of development,[131] yet it appears to be the more frequently used option, featuring such arrangements as: like-for-like offsetting which is too flexible; the ability to pay money instead of securing land-based offsets; and the ability for mines to use the promise of future rehabilitation as a biodiversity offset, meaning they can poorly rehabilitate in order to later gain credits for the cleaning up they should have done anyway.[132] Under this scheme, since 2014, vulnerable species and communities have been subjected repeatedly to extensive habitat loss and poorly enforced, failed and abandoned offsetting proposals.[133]

In August 2022 the NSW Auditor-General released a damning report into the design of the NSW Biodiversity Offsets Scheme.[134] At the time of the review it said the scheme failed because:

- There was not sufficient supply to meet demand of land suitable for credits.
- There was no complete register of biodiversity offsets in NSW nor readily available information to check whether developers are complying.
- It failed to anticipate a situation where biodiversity gains were not sufficient to offset the losses that result from the impacts of development.

There is now a more complete register of credits and transfers but this does not include property owned and controlled by mining companies to offset mining operations.[135] There is too little investment in vegetation mapping, threatened species monitoring, and reporting on biodiversity loss and trends at the local and regional level to allow for any confidence in the system as it stands. It has now become routine for mines to be approved without evidence that extant areas of mature vegetation exist and are available to be secured to offset that mine's impact.[136] In fact, a significant proportion of mines with offset obligations fail to ever meet deadlines to properly secure offset properties, instead promising to re-establish complex ecosystems up to a decade in the future after mining ceases.[137] Moreover, the estimates of habitat loss from mining companies can be vastly less than when measured by independent scientists.[138]

If mining companies do propose areas for offsetting, they often use the same areas for more than one mining activity or return years later with proposals to clear their offsets and replace them with others. For example, two offsets for Peabody and Glencore's joint venture United Wambo mine, are the Highfields and Mangrove offset sites, which are also now deemed as offset sites for Glencore's Mangoola Continuation Project.[139] This proposition is absurd. Offsetting began as an option of last resort, but has now become the assumed approach for biodiversity impact mitigation.

At the time of publication, world governments had recently concluded their latest meeting on biodiversity, COP15. At this meeting it was stressed that governments must take the lead and create policies to protect biodiversity, and that these policies need to broaden beyond protection of individual species to whole ecosystems. Four targets of the framework are relevant here:

- Restore at least 30 per cent of degraded land and waters by 2030 (target 2).
- Integrate biodiversity values in environmental impact assessments (target 14).
- Implement legislation requiring companies to disclose how their operations impact biodiversity (target 15).
- Eliminate or phase out incentives such as subsidies that are harmful for biodiversity (target 18).[140]

LEFT: Coal wash sediment in saltmarsh on Kooragang Island. Photo by Doug Beckers available under a Creative Commons Attribution-Noncommercial license from www.flickr.com/photos/dougbeckers

What we heard

"The consultation hasn't been there to really be able to know what everybody wants, but certainly there is a concern that every mining company will start galloping down the rezoning path to get out of their rehabilitation commitments."

"How do we go about turning the land into being usable again when it's been turned upside down, blown apart, and then put somewhere else?"

"I would like to get out of a reactive role for the community, so they're involved before a proposal goes up, because it really doesn't go out for consultation, it goes out for comment, which they may or may not consider."

"The incorporation of Indigenous knowledge and environmental ideologies will engage a greater proportion of the community into rehabilitation processes; ultimately aiding in the resolution of multiple current problems surrounding the closure of mines in the Hunter region."

"Having already gone through 40 years of impact and looking at another 10 years means we've been hammered for half a century by the dust smells and vibrations. It would be disappointing if whatever the replacement is has an equivalent impact on residents".

"Certainly water use is essential to consider because it impacts on groundwater, which impacts on all the farms and everyone else in the area."

"We must involve the whole community, including First Nations people, in the move towards a future for industry and settlement that respects all living beings and all humans dependent upon the environment."

"Climate change is the number one risk to the environment, human health and our ongoing existence on this planet. We should be doing more and renewing the Hunter in a green and climate-responsible way."

"Change is often only successful in the long-term if it has the support of the people it is going to impact. If there is not a sense of local ownership over the future direction of the area, plans will ultimately fail."

"We know for sure that the coal industry is going to decline with the global energy transition. Right now is the time to hit mining companies in their hip pocket and get some money back to the Hunter to help us fund this transition".

"Bonds cannot realistically cover the cost of restoring the biodiversity and ecosystems that existed prior to mining development."

NOTE: All websites accessed November to December, 2022 unless stated otherwise. For accuracy, some URLs were updated July 2023.

INTRODUCTION

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