

REHABILITATION

Industry Principles & Commitments



Upper Hunter
Mining Dialogue

2021 Results and Analysis

Since 2012, the Upper Hunter Mining Dialogue has been collecting and reporting on annual rehabilitation data from Upper Hunter mining operations, providing information to the community and improving transparency regarding the amount of progressive rehabilitation across the region. The mining industry has agreed to a set of common rehabilitation principles and commitments to drive improvements to rehabilitation. More information regarding these principles and commitments can be found on the following page. The table below provides a yearly overview of the newly rehabilitated land and newly disturbed land during each calendar year.

In 2021, a further 701 hectares of land was rehabilitated, taking the total amount of land under rehabilitation to 14,746 hectares, which equates to just over 39 percent of all land disturbed by mining in the Upper Hunter. During the same period, 514 hectares of disturbance was recorded. The annual rehabilitation to disturbance ratio means that for every hectare of land disturbed, 1.36 hectares of rehabilitation was undertaken. This is the first time since this project was first undertaken in 2012 to deliver a positive rehabilitation to disturbance ratio. At the close of the reporting period, a total of 23,058 hectares of disturbed land is awaiting rehabilitation, which is also an improvement on the opening figure.

As cumulative figures are presented for all operations in the Upper Hunter rather than at a site-specific level, the total figures in any given year may be impacted by newly established operations, or the expansion of an existing site. Sites commencing or expanding operations generally disturb land at a higher rate than sites which are later in their lifecycle, where rehabilitation is more likely to increase nearer to closure. However, all mines are required to progressively rehabilitate disturbed land throughout the duration of operations and publicly report their progress.

During the active operation of a mine site, there is only a limited amount of land that is available to be rehabilitated. Much of the land reported as disturbed and awaiting rehabilitation, may not actually be available for rehabilitation during the reporting period as it is likely this is being actively used in some capacity by mining operations during the reporting period.

| Rehabilitation | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 [8] | 2018 | 2019 | 2020 [12] | 2021 |
|---|--------|--------|--------|-----------|--------|----------|--------|-------------|-------------|-------------|
| A: Disturbed land awaiting rehabilitation - Start amount (ha) [4] | 17,830 | 18,098 | 18,479 | 20,171 | 21,180 | 21,472 | 21,816 | 22,276 | 22,726 | 23,245 |
| B: Total land newly disturbed within the reporting period (ha) | 1,163 | 1,148 | 1,057 | 1,424 [6] | 1,270 | 1,008 | 1,666 | 979 | 1,380 | 514 |
| C: Total land newly rehabilitated within the reporting period (ha) [1] | 895 | 962 | 801 | 856 | 907 | 763 | 1,071 | 869 | 848 | 701 |
| D: Disturbed land awaiting rehabilitation - End amount (ha) (D=A+B-C) | 18,098 | 18,283 | 18,736 | 21,008 | 21,304 | 21,770 | 22,411 | 22,518 [10] | 23,259 | 23,058 |
| E: Total land under rehabilitation at all operations (ha) [2] | 8,791 | 9,145 | 10,023 | 10,783 | 11,653 | 12,315 | 12,714 | 13,470 | 14,242 [11] | 14,746 |
| F: Annual ratio of rehabilitation to disturbance (C:B) [3] | 0.77 | 0.84 | 0.76 | 0.6 | 0.71 | 0.75 [7] | 0.64 | 0.89 | 0.61 | 1.36 |
| G: Overall proportion of disturbed land rehabilitated | 32.7% | 33.3% | 34.9% | 33.9% | 35.4% | 36.1% | 36.2% | 37.4% | 37.9% | 39.0% |
| Other Managed Land [5] | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
| Estimate of total biodiversity offset land (ha) | 10,973 | 13,164 | 22,607 | 22,773 | 25,466 | 41,768 | 41,139 | 41,803 | 43,689 | 41,034 [13] |
| Estimate of total managed agricultural land (ha) | 57,533 | 60,174 | 44,252 | 44,632 | 40,146 | 59,320 | 59,212 | 59,209 | 59,160 | 52,788 [14] |
| Estimate of total buffer land (ha) [9] | N/A | N/A | N/A | N/A | N/A | N/A | 47,063 | 47,179 | 48,175 | 41,629 |

Note: Please see over the page for Contextual Notes that provide further information to the figures in the above table.

To find out more, visit miningdialogue.com.au

Industry rehabilitation data for 2021 was kindly provided for this project by Glencore, Yancoal, The Bloomfield Group, BHP, Muswellbrook Coal Company, Peabody Energy, Mount Pleasant Operation, Bengalla Mining Company and Malabar Resources.

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| Contextual Notes to the Rehabilitation Progress Table | |
|---|---|
| [1] | Rehabilitation is defined by the Mining Act 1992 as the treatment or management of disturbed land or water for the purpose of establishing a safe and stable environment. |
| [2] | 'E' figures for the current reporting year are generally calculated by adding the new rehabilitation 'C' amount from the current reporting year to the total land under rehabilitation 'E' amount from the previous reporting year. This may not add up neatly in all cases as areas that have been previously rehabilitated and then re-disturbed are excluded from the total area of rehabilitation of all operations at the end of the reporting period. |
| [3] | The rehabilitation to disturbance ratio indicates how many hectares of rehabilitation are undertaken for each hectare of land disturbed during the year. A ratio of 1 would indicate that the area of rehabilitation and disturbance in that year are the same. |
| [4] | Row A (Year) may not necessarily equal Row D (Year -1) because some companies have reconciled their figures and corrected them over time. |
| [5] | There have been substantial changes in the amount of 'Other Land Managed' between 2013 and 2014 because: (i) significant increases in additional offset areas have been established, and (ii) because some of the land previously identified as being used for agriculture is now being used for mining purposes or biodiversity offsets. |
| [6] | The increase in land newly disturbed in 2015 is predominantly due to the establishment of the Bulga Optimisation project. |
| [7] | Mount Pleasant Operation, commenced operation during the 2017 reporting year. Typically, during the initial stages of a mining operation a larger amount of disturbance is conducted to establish the mine and associated infrastructure. As the mine develops, progressive rehabilitation is conducted and much of the initial disturbance is rehabilitated. While the rehabilitation to disturbance ratio was 0.75 in 2017, if Mount Pleasant was omitted, this would have been a positive ratio at 1.03, meaning that the sites operating prior to 2017 had collectively rehabilitated more land than disturbance that year. Total figures from the 2017 results have also been adjusted to rectify a reporting error from one site that over-reported of newly disturbed land. |
| [8] | Total figures from the 2017 results have been adjusted following the discovery of a reporting error from one site that incorrectly reported cumulative disturbance as newly disturbed land, which resulted in an over-reporting of the actual amount of disturbance across Upper Hunter operations. |
| [9] | The Dialogue introduced a new reporting category as part of the 2018 results, where the total amount of buffer land owned by the mining companies operating in the Upper Hunter is now being reported. The total amount is also broken down into various categories. |
| [10] | The reported D and E figures for 2019 do not align with previously reported data. This is due to a site reporting that 170 ha of previously reported rehabilitation is being reclassified as a result of an Independent Rehabilitation Review conducted in 2019. Approximately 40 ha of this amount was reported as rehab disturbance in 2019, however a remaining discrepancy of 130 ha was removed from the rehabilitation reporting due to the fact that these were seeded to cover crops, but not the final seed mixes. These areas will be seeded to the final seed mixes in 2020 and 2021 and will feed back into the rehabilitation reporting figures in the coming years. |
| [11] | The 'E' figure that identifies the total area of rehabilitation completed at the end of the reporting period is usually derived from adding the existing aggregate total to the new rehabilitation undertaken during the reporting year. However, the 2020 'E' figure is impacted by the disturbance of previously rehabilitated areas across two operations for dump space, resulting in a lower than expected aggregate rehabilitation total in 2020. |
| [12] | The United Wambo Joint Venture (UWJV) commenced on 1 December 2020. Data reported by Glencore and Peabody in 2020 now reflects the new arrangements (i.e. Peabody and Glencore have reported on their respective sections of responsibility of UWJV). Given the transition in reporting arrangements, there may be minor discrepancies in the data reported, which may have an impact on the total results reported, such as the difference between the 'A' figure for 2020 (total land area disturbed and not yet rehabilitated at the beginning of 2020) and the 'D' figure for 2019, which are generally similar figures. Differences in figures between 2019 and 2020 data is also partially due to several sites amending their figures between the close of the previous year's reporting and the start of the new calendar year. |
| [13] | The total figure for biodiversity offset land decreased slightly in 2021, due to a revision and correction of this data from Mount Pleasant Operation following an internal review for accuracy. |
| [14] | The figures for managed agricultural land and buffer land both decreased by a significant amount in the 2021 reporting year with Glencore advising they no longer include offset lands in this figure, and BHP advising of an increase in active mining area and the construction of the new Edderton Rd. |

Upper Hunter Mining Dialogue Temporary and Final Rehabilitation Principles and Commitments

All Dialogue member companies have agreed to a set of common principles and commitments, developed by the Joint Environment Working Group, to encourage improvements in the speed of rehabilitation and to provide aggregate data to the community about total land disturbed and rehabilitated. The Principles are as follows.

- 1. Include rehabilitation planning in mine planning** - Planning for rehabilitation should be integrated into the mine planning process and should include allocating adequate and dedicated resources to achieve the planned rehabilitation outcomes.
- 2. Undertake progressive rehabilitation** - Companies should undertake rehabilitation progressively, with the objective of ensuring that rehabilitation is as close as possible to active mining.
- 3. Minimise time that disturbed areas are left without vegetation** - Companies should actively seek to minimise the time that land is left without cover during mining. This should include:
 - Taking steps to ensure that rehabilitation is commenced within 12 months of land becoming available for rehabilitation.
 - Utilising methods of temporary rehabilitation*, such as aerial seeding of overburden and other disturbed areas where permanent rehabilitation has not commenced.
- 4. Prioritise areas of rehabilitation and temporary cover to reduce impacts** - Companies should prioritise rehabilitation and temporary cover in those areas where leaving land exposed will have the most impact. The following areas should be considered to have priority:
 - Areas that have the greatest impact on visual amenity, such as areas that face townships, residences, or the highway
 - Areas that have the potential to generate dust leaving the site.
 - Areas that are important for biodiversity, such as rehabilitation adjoining or providing connectivity to remnant vegetation.
- 5. Meet target for rehabilitation progress identified in the Mining Operations Plan** - Each company should meet the annual target for rehabilitation quantity (area) set in the Mining Operations Plans for each of its mines.
- 6. Set quality targets for rehabilitation in the Mining Operations Plan and implement a monitoring program to measure performance** - Each company should include quality targets for the various types of rehabilitation in the Mining Operations Plan for each of its mines. A monitoring program to measure the performance of rehabilitation areas against the quality targets should be implemented at each of its mines.

* Temporary rehabilitation describes reshaping, revegetation and other rehabilitation techniques that are used for purposes other than final rehabilitation. This includes such initiatives as seeding overburden emplacement areas, which are only temporary, to reduce erosion.

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