

Submitter information

The Ministry of Business, Innovation and Employment (MBIE) would appreciate if you would provide some information about yourself. If you choose to provide information in the “About you” section below it will be used to help MBIE understand the impact of our proposals on different occupational groups. Any information you provide will be stored securely.

A. About you

Name: Andrew Turnbull

Email address: Privacy of natural persons

B. Are you happy for MBIE to contact you if we have questions about your submission?

Yes No

C. Are you making this submission on behalf of a business or organisation?

Yes No

If yes, please tell us the title of your company/organisation:

I am making this submission in my personal capacity, primarily out of concern for the environmental impact of unnecessary dredging. However, I am a director and partial shareholder of Kayasand, a company that sells manufactured sand making equipment.

D. The best way to describe your role is:

- | | |
|---|--|
| <input type="checkbox"/> Academic/researcher/research institute | <input type="checkbox"/> Independent expert (please specify below) |
| <input type="checkbox"/> Community group (please specify below) | <input type="checkbox"/> Business owner (please specify below) |
| <input type="checkbox"/> Consultant (please specify below) | <input type="checkbox"/> Environmental NGO (please specify below) |
| <input type="checkbox"/> Tradesperson (please specify below) | <input type="checkbox"/> Student (please specify below) |
| <input type="checkbox"/> Industry group (please specify below) | <input type="checkbox"/> Other (please specify below) |
| <input checked="" type="checkbox"/> Industry participant (please specify below) | <input type="checkbox"/> Prefer not to say |

Please specify here:

Keen sailor and user of the regular user of the Hauraki Gulf and Bay of Islands.

Investor, director and entrepreneur with the goal of building businesses that will grow the New Zealand economy.

Director and partial shareholder of a company supplying quarry equipment for sand manufacturing. I got involved in Kayasand out of a keen interest in finding more sustainable and economic building materials to meet New Zealand’s growing construction needs.

E. Privacy information

- The Privacy Act 2020 applies to submissions. Please check the box if you do not wish your name or other personal information to be included in any information about submissions that MBIE may publish.
- MBIE may upload submissions, or a summary of submissions, received to MBIE's website at www.mbie.govt.nz. If you do not want your submission or a summary of your submission to be placed on our website, please check the box and type an explanation below:

I do not want my submission placed on MBIE's website because... [insert reasoning here]

F. Confidential information

- I would like my submission (or identifiable parts of my submission) to be kept confidential and have stated my reasons and ground under section 9 of the Official Information Act that I believe apply, for consideration by MBIE.

If you have checked this box, please tell us what parts of your submission are to be kept confidential.

A Draft Critical Minerals List for New Zealand

MBIE is developing a critical minerals list for New Zealand to identify the minerals that are:

- essential to New Zealand’s economy, national security, and technology needs, including renewable energy technologies and components to support our transition to a low emissions future; and/or
- in demand by New Zealand’s international partners to enable us to benefit from international economic opportunities, contribute to the diversification of global mineral supply chains and improve the pipeline of the end-use products for which these minerals are essential; and
- susceptible to supply disruptions domestically and internationally. In some instances, we rely on domestic sources of minerals, but the supply of these minerals can be constrained, for example by regulatory factors and social licence. Internationally, supply chain disruptions could arise due to geopolitical risks and external market forces.

Minerals play an essential role in New Zealand’s economic growth through high-paying jobs, Crown royalties, direct positive impact in the regions where mining takes place, and through export revenues. Minerals are also critical inputs into products that are necessary for other sectors to thrive, including the use of aggregates in construction and infrastructure.

Minerals are also essential to modern economies as they are needed to manufacture advanced technologies such as semi-conductors, defence applications and medical equipment. Minerals are also critical for a clean energy transition as low emission technologies requires more mineral inputs than those fuelled by fossil fuels.

The extraction and processing of the minerals essential to New Zealand and our international partners are concentrated in a few countries. Any disruption that interrupts operations at a large facility or group of facilities can have a major impact on supply availability, and therefore on prices. The greater the concentration of production the larger the affect a disruption can have.

In addition, New Zealand does not manufacture a wide range of technologies, we are generally an end consumer of many products produced internationally and rely on the functioning of international supply chains and their access to resilient supplies of minerals.

The development of a critical minerals list is one of the key actions identified in the draft Minerals Strategy that was publicly consulted on from 23 May – 31 July 2024. Due to the technical nature of the list, MBIE engaged a consultancy with specialist expertise, Wood Mackenzie, to support the development of the list.

We are seeking feedback on the content of the draft list that has been developed by Wood Mackenzie for New Zealand. It identifies the minerals that are critical to New Zealand and summarises the reason for their inclusion in the list. Once the list is finalised, actions could be identified to help us reduce the ‘criticality’ of those minerals, i.e., secure better access to them.

Please see the draft Critical Minerals List attached below for more information.

Questions for the consultation

1. Have we missed the inclusion of any mineral(s) on the draft Critical Minerals List?

Yes, (please provide more details below) No, the list is okay. Not sure/no preference
Is there anything you would like to tell us about the reason(s) for your choice?

2. Have we included any mineral(s) that you think should not be on the list?

Yes, (please provide more details below) No, the list is okay. Not sure/no preference
Is there anything you would like to tell us about the reason(s) for your choice?

Definition issues

1. The consultation document provides no information on why 'sand' and 'aggregate' have been grouped together. However, it is incorrect to do so. They do not have the same level of criticality, demand or susceptibility to supply disruption as each other. Grouping them together skews the analysis of these factors and therefore their inclusion as the lowest ranked mineral on the draft list. I suggest that if these minerals had been separated, that sand would not have even reached the "below 5" score awarded. As stated in the consultation document, "aggregate and sand" were only included due to "their level of economic importance to New Zealand". As set out below, dredged sand does not meet this criteria.

This list relies on the definition of Mineral in the New Zealand Crown Minerals Act 1991. The definition does not require the grouping of these two minerals, nor is there any practical reason for doing so.

Opposition to Sand

2. I do not oppose the inclusion of aggregates on this list.

Essential to New Zealand's economy

3. *Both aggregate and sand are important elements of construction. However, dredged sand is not 'essential' as there are already, more environmentally and economically beneficial alternatives. It does not support a transition to a low emissions future.*

Susceptible to supply disruptions

4. Aggregate supply in areas such as Auckland is susceptible to supply chain constraints. Quarries looking to meet growing demand for construction materials are being heavily constrained by consenting processes and regulations. The result is higher aggregate prices and restricted availability. This leads to cases of material having to be freighted long distances from outside the Auckland region to meet growing demand. Streamlining the approval process for quarry consenting would help infrastructure development and economic growth without raising the risk of environmental harm.
5. Manufactured sand has also been shown to offer economic and environmental benefits such as reducing cement usage. This means building materials cost less to build and contain less embedded emissions.
6. There is already ample construction sand supply available in critical areas such as Auckland, Waikato, Canterbury and elsewhere. Construction sand is essential for New Zealand's economy. But the ability to mine or dredge natural sand for construction is not essential to New Zealand's economy, national security and technology needs. New Zealand does not import or export construction sand in any real volume. It is not susceptible to supply disruptions that require government intervention to address.
7. Sand manufactured from crusher dust in quarries can easily replace the need to mine or dredge natural sand. Crusher dust is a byproduct of the aggregate crushing process in quarries. With some further processing, crusher dust is made into manufactured sand for application in construction. There has been a transition to using more manufactured sand in concrete for a while now and it has now been unequivocally proven that high quality manufactured sand can be used to completely replace natural sand in concrete.
8. Auckland is by far the biggest user of concrete sand. I estimate that Auckland's total concrete sand demand is on the order of 1.2-1.4m tonnes per annum. About half of this supply already comes from sand manufactured in quarries. The other half comes from dredged sand. The two active consents for dredging sand in the Kaipara harbour allow for over 1m tonnes of sand per year. Recently published data shows that only half of the dredging allowed in the Kaipara harbour is actually being used by the two approved consents. There is plenty of sand available in Auckland and, as demand grows, companies will make the investment necessary to produce more.
9. New investment is already being made in quarries to increase manufactured sand supply. Kaipara Ltd recently invested \$12m in building a manufacturing sand plant at Brookby Quarry, south of Auckland. The plant is operational in 2024 and will produce 300,000-600,000 tonnes of concrete sand per year. This installation alone could meet 25-50% of Auckland's concrete sand demands.
10. Kayasand recently built a \$4m sand manufacturing plant at Ward Quarry in Te Kauwhata. The technology used in this plant is already used in more than 300 installations globally. The Kayasand plant is now supplying engineered concrete sand into the Auckland market that completely replaces natural sand in concrete. It is the smallest of Kayasand's plants and is capable of producing 100,000 tonnes of concrete sand per year. Kayasand's \$10m V7-120 plant can produce 400,000 tonnes of engineered sand per year. Their biggest plant could produce 600,000-800,000 tonnes per annum.

11. The focus on mining natural sand is backwards step when most countries globally are moving away from dredging natural sand in sensitive ecosystems. Most OECD countries now do not allow dredging other than as required to keep water ways clear.

Conclusion:

“Sand” should be removed from the list of critical minerals and “aggregates” should be assessed alone. Otherwise, there is a high risk that dredging of sand for construction will somehow be considered to be an essential activity for the New Zealand economy, when this is patently not correct. There is plenty of sand supply from mining, dredging and manufacturing processes. Where shortages emerge, the market adapts and quarries increase their production to meet demand.

3. Do you have any further feedback on the list, or the methodology under which it was developed?

Yes, (please provide more details below) No, the list is okay. Not sure/no preference
Is there anything you would like to tell us about the reason(s) for your choice?

Thank you

Thanks for your feedback, we really appreciate your insight on the development of New Zealand’s Critical Minerals List.