

# **SUBMISSION ON THE MINERALS AND PEROLEUM RESOURCE STRATEGY FOR AOTEAROA NEW ZEALAND: 2019-2029**

September 2019

## **Introduction**

The Aggregate and Quarry Association (AQA) is the industry body representing Construction Material companies which produce an estimated 40 million tonnes of aggregate and quarried materials consumed in New Zealand each year.

Funded by its members, the AQA has a mandate to increase understanding of the need for aggregates to New Zealanders, improve our industry and users' technical knowledge of aggregates, and assist in developing a highly skilled workforce within a safe and sustainable work environment.

## **Background**

Accessing, extracting, processing and transporting aggregate (crushed rock, gravel and sand) is needed for the construction of infrastructure in New Zealand.

In 2017, the New Zealand aggregate and quarrying sector produced 41 million tonnes of aggregates, including limestone and other products, with an economic contribution to New Zealand estimated at \$2.8 billion. This included a wide range of industrial minerals including clay, limestone, perlite, halloysite, bentonite, zeolite, silica, dolomite and serpentine. Current supplies of aggregate are under pressure amid looming shortages, which contributed to a 15% rise in the price of aggregates in 2017.

It is therefore vital that local aggregate resources throughout the country are identified understood and effectively managed.

We make the following submissions in relation to the consultation document Responsibly Delivering Value - A Minerals and Petroleum Resource Strategy for Aotearoa New Zealand: 2019–2029

## **Overall Vision for the minerals and petroleum sector in New Zealand**

We are generally in support of the overall vision for the resources sector. It is critical that the sector “delivers value”, now and into the future in an “environmentally and socially responsible way”. Sourcing aggregate locally, safely, at reasonable cost and in environmentally stainable ways is fundamental to New Zealand's future.

In order to sustainably derive value from aggregates, it is critical that planning processes are simplified and streamlined, quarry resources are protected so they can supply vital construction materials and quarry land is returned as an asset to the community once extraction is complete.

We would like to bring your attention to the infographic on Page 4 which states “7.6 tonnes” as the average quantity of aggregate consumed by every New Zealander, each year. The paragraph on quarrying however on page 13 correctly refers to 41 million tonnes consumed in 2017 (NZP&M statistics). If we divide the tonnes consumed by the 2017 population of 4.794 million, the average consumption would be 8.6 tonnes per person per year. We believe the 7.6 tonnes figure could be a previous year’s number included in work done by Auckland University.

## Objectives

### **Responsibly delivers value for New Zealand (a) Supporting a productive, sustainable and inclusive economy (b) Supporting New Zealand's transition to a carbon neutral economy.**

We agree with this objective. As stated in the strategy, aggregates are critical to growth and infrastructure development and maintenance. Demand is almost totally domestic and currently the only alternative to local extraction and supply of aggregates is to import aggregates to meet demand. It is likely that such imports would come from countries who are not operating in sustainable ways nor aiming to achieve carbon neutral targets similar to the ambitions of New Zealand. Importing of aggregates would also put added pressure on our ports, infrastructure and increase carbon emissions through delivering aggregates greater distances.

### **Is productive and innovative**

We strongly agree with this objective. The supply of aggregates is currently under pressure from demand and planning which is pushing quarries further away from local markets, thus increasing costs. Being productive and innovative will assist aggregate producers in maintaining costs but will need to be supported by streamlining of planning so that critical quarry resources are protected from sterilization.

### **Is effectively regulated**

We agree with this objective. Regulation is important in setting and maintaining good practice. Such regulation must balance the demand for resources, the location and availability of resources with environmental and socially acceptable standards. It is important that the regulatory regime does not unnecessarily constrain supply of resources through delay and/or the burden of excessive costs. With additional planning pressures, smaller quarries, may either run out of consented or physical resource, or won't be able to afford a new or replacement consent.

Such constraints will inevitably be to the cost and detriment of all New Zealanders.

## Principles

### **Principles to guide everyone**

We are generally in support of these principles. It is essential that there is enough supply of aggregates to provide the infrastructure and buildings that the country needs. Since aggregates are a finite natural resource, and can only be quarried where they are found, best use needs to be made of them to secure long-term conservation.

We acknowledge the importance of the circular economy in the aggregates sector and generally, maximising the use and reuse of the same resources for as long as possible. However, while increased recycling and resource efficiency will have some impact, the technology is nowhere near ready to fully replace the need for extraction of natural aggregates.

For a “circular economy” to work, the purpose needs to be established first and then must be supported by incentives for customers and suppliers to re-use or recycle products. Currently there is little incentive for recycling and re-use due to the cost of processing these products relative to natural products and the reluctance of customers to specify and/or allow the use of recycled products. These customers include central and local government who are both significant users of aggregates and sand.

We do not have accurate data on construction waste in New Zealand and general statements of the scale of construction waste mask weaknesses in understanding of the composition of the total waste stream. Such perceptions are simplifying what is ultimately a complex situation. More consistent and comprehensive data collection and monitoring of waste streams and resource use is needed.

A cost/benefit analysis for recycling and re-use of construction waste needs to be conducted by Government, in consultation with industry, in order to establish the types of incentives, and/or penalties, needed to achieve positive outcomes from the principle of a circular economy.

### **Principles to guide the Crown**

We strongly agree with these principles.

### **Principles to guide Industry**

We strongly agree with these principles.

## Action areas for the Government

### **Modernising the Crown Minerals Act**

We agree that the CMA needs modernising to be fit-for-purpose and responsive to changes in the sector. Processes within the CMA need to be enabling and efficient so

as to support the Government's wider priorities including affordable energy, housing, urban development and roading infrastructure.

The Crown holds significant reserves of minerals and the CMA plays an active role in meeting the Government's goals through promoting, encouraging and enabling mineral use, clearly with appropriate caveats. It is critical that the CMA retains its emphasis on promoting efficient mineral use in order to ensure that the Government's goals are achieved.

We are disappointed with the status given in the Strategy to the No New Mines on Conservation Land proposal. We strongly believe it would have made more sense to consider this in the context of the resource strategy, not as a pre-condition. While unclear how this policy will apply to quarries, recent work by GNS has identified that 32% of future hard rock reserves are situated on DOC land. Any sterilisation of available quarry resources will impact heavily on iwi and regional communities in terms of jobs, availability and cost of aggregates and sand.

Currently extraction of aggregates on DOC land is essential for flood mitigation, river restoration, and the construction and maintenance of tracks, carparks and structures in National Parks and on other DOC land. An example is the extraction of rock and gravel from conservation land adjoining the Waiho River near Franz Josef Glacier to help protect its walking tracks. This sensible and pragmatic decision saved DOC a fourfold amount – and considerable carbon emissions – from the alternative of trucking material a long distance.

### **Securing affordable resources to meet our minerals and energy needs**

We strongly agree with this action area. Adequate provision must be made in planning documents to recognise existing and potential aggregate and sand deposits and provide for their extraction. Quarry materials are not universally available and can only be sourced from where they are located; without planning to provide for adequate access to resources at workable locations, there is the real risk of losing access to such proximate resources.

An important issue for quarries operating in areas of expanding residential growth is reverse sensitivity – people complaining about quarries after moving into an existing quarrying area. This has the potential to sterilise existing and future resources which mean increased costs for more remotely sourced aggregate and lost opportunities for the local economy. Public sector revenue (through ownership of Crown mineral rights) is also at stake.

We would like central government to give local authorities greater direction in planning for key resource areas, in order to protect existing quarries from encroachment of non-compatible land uses such as housing and reduce reverse sensitivity potential.

Planning needs to be streamlined so that resource consents are quicker to obtain and less costly, without reducing the need for community consultation, environmental sustainability and mitigation of the impacts on the community.

## **Improving treaty partnerships**

The Draft Strategy refers to the interests Maori have in protecting certain land from mining. While this may be true in places, at the same time, Maori have significant interests in the resource sector and in retaining access for historical, cultural and economic reasons.

Archaeological evidence of early Maori tools, weapons and ornaments demonstrate Maori have been extracting mineral resource since 1400 AD, within 150 years of Māori settlement. Former quarries have been identified where blocks of adzite and obsidian were excavated, and fragments trimmed to a convenient size.

In addition, many Maori work and have business interests in the aggregates sector. The percentage of Maori employed in mining and quarrying is much higher / almost twice as high as the equivalent figure for the population as a whole.

## **Improving stakeholder and community engagement**

We strongly agree with this action area. The quarry industry currently works collaboratively with local communities and councils to reduce our environmental impact and meet legal requirements of environmentally sustainable operations.

It is unfortunate that aggregates' significant contribution to society is often not well appreciated by the public at large, nor are the steps taken by industry to ensure the potentially negative impacts of quarrying are minimised.

We believe Government has a role in informing the public of the importance and contribution of minerals and resources including for the low carbon economy. The publication of a balanced Resource Strategy can, and should, go some way to do that.

We will continue to work with government and the community to find innovative ways to return former quarries to communities as lasting assets – examples are productive wine growing land in Marlborough, Halswell Quarry in Christchurch, Mount Smart Stadium and the Three Kings housing development in Auckland.

## **Improving industry compliance**

We will continue to improve and promote industry compliance. We will continue to support the Government's housing objectives, infrastructure improvements and regional development initiatives. However, it is critical that additional constraints placed on industry do not put unnecessary pressure on cost, supply of aggregates in a timely manner, and future ability to supply the needs of local and central government and the community.

A number of policies / regulatory regimes which are not mentioned here do have an impact on the sector and need to be addressed. First and foremost, the Overseas Investment Act is referred to in the Minerals and Petroleum Regulatory Regime section on page 14 but not to any detail.

We were alarmed at the recent decision to decline the application of OceanaGold to purchase land adjacent to its Waihi mine and believe that the Overseas Investment

Act needs to be amended around the Ministerial veto power and the use of environmental barriers to overseas investment. We have also experienced significant delays in OIA consideration of relatively minor land acquisitions for buffer land around quarries when there are more appropriate mechanisms for environmental regulation.

### **Research and investment in better mining and resource use**

While work has been done to identify some future aggregates and sand sources, this work needs to be completed. We have recently submitted a PGF funding application in conjunction with GNS to complete this critical mapping of aggregate resources (refer attached Appendix 1 - summary of GNS/AQA PGF funding application).

The Government, in consultation with the aggregates sector, needs to confirm the available sources of aggregate and sand throughout the country, including aggregate quality, accessibility, and proximity to markets so that those sources identified as critical for the country's future growth, are protected and remain accessible to meet future demand.

Mapping of resources needs to be easily accessible to local government, planners, developers and the community.

## Appendix 1

### Funding Request – Provincial Aggregate Resource Framework

The Aggregate and Quarry Association is seeking funding to develop a Provincial Aggregate Resource Framework supported by a national aggregate resource map compilation, selected detailed regional maps and regional resource modelling tools.

#### Background

More than 40 million tonnes of stone, gravel and sand are required each year to meet New Zealand's current infrastructure demand, equivalent to one rigid truckload per New Zealander. With our population set to rise to between 5.3 and 7.9 million by 2060, this rise in population alone will require approximately 1.2 million new homes to be built over the next 40 years. That is 30,000 new homes every year.

Central and local government will need to invest an unprecedented amount of money into infrastructure, such as schools, hospitals, roads and transport, to meet this population growth. The New Zealand Government relies heavily on locally sourced aggregate resources for infrastructure repair following disasters, for road and rail transport corridors, major projects and for housing development, all of which are essential for the social, economic and cultural well-being of communities.

New Zealand urban spread and development projects are constrained by restricted availability of suitable local aggregate and earth materials for construction. Regional growth projects involving major building and infrastructure developments are likely to incur escalated costs due to a lack of nearby, consent-approved aggregates in the near term and longer term. For many projects the cost of transporting suitable material is adding significantly to project costs. Recent examples of this have been the Opotiki Wharf Project and the Transmission Gully Highway Project. The AQA met Infrastructure and Regional Development Minister Hon. Shane Jones in October and separately the Minister for Housing, Transport and Urban Development, Hon. Phil Twyford. Both Ministers were briefed about the rising costs of aggregate (15% increase in 2017) and the potential for continued increases to impact on Government housing and roading programmes as well as wider regional and economic growth ambitions.

Minister Jones specifically mentioned the Opotiki Wharf project as an example where the cost of aggregate had contributed to a blow-out in the costing for an important infrastructure project. He was keen to see the AQA develop any proposals that could assist with the identification of proximate aggregate resources which could reduce the cost of the Opotiki or any other project seeking funding from the Provincial Growth Fund.

Both Ministers were also interested to learn about the impact of planning on aggregate provision and cost and that the major contributor to the cost of aggregate is the distance it is transported. The price of a truck load of aggregate doubles if it is carried 30km and continues to rise markedly with each kilometre. Suitable aggregate material can usually be found within a 30km radius, but current planning laws make it difficult

to establish and maintain quarry operations in urban and peri-urban areas. The key to change, is good planning that establishes future quarrying areas and limits urban or lifestyle encroachment on them.

The Ministers accepted that central and local regulatory authorities need improved information on areas of important aggregate and earth material resource, to enable planning and informed decision-making. Adequate provision must be made in planning documents to recognise existing and potential aggregate and sand deposits and provide for their extraction. Quarry materials are not universally available and can only be sourced from where they are located; without planning to provide for adequate access to resources at workable locations there is the real risk of losing access to such proximate resources.

## Project Objectives

The proposed project aims to:

1. Better characterise the physical properties of different aggregate and earth materials represented by geological map units;
2. Better define the spatial distribution of different aggregate and earth materials; both nationally and regionally through a pilot study;
3. Build an aggregate and earth materials resource model that enables source-transport-application decisions and improved planning using geological, engineering data and environmental, social, cultural and financial constraints.

## Proposal

AQA and GNS Science would work in collaboration; AQA providing technical advice and liaison with Territorial Local Authorities and the industry, with GNS providing the geological and mapping data, interpretation and analysis.

The current GNS Aggregate model utilises a simplistic engineering characterisation of existing geological mapping. This project would build in considerable physical property detail to the geological map units relevant for a range of aggregate and earth material types. The result will be a national engineering and rock property map that can be used with much-improved confidence by the Aggregate Resource Model.

Rock property data from multiple sources would be digitised and added to PETLAB (GNS Science's publicly accessible rock and mineral properties database) as well as summarised for each geological unit in GNS Science's freely available and online national 1:250 000 geological map of New Zealand.

The study would highlight those areas where there are potentially suitable rock sources for aggregate supply. These areas could be targeted for further investigation and



marked in planning documents as having potential so that aggregate supply is not sterilised by future development or non-compatible land uses.

The work involves three sequential workstreams.

## **Workstream 1 – National Framework**

A national engineering and rock property map, based on 1:250 000 geological map data, will be built so that it can be used with much-improved confidence by the Aggregate Resource Model for critical aggregate and material types e.g. basecourse gravel, sand, rip-rap, clays. Characteristic physical properties relevant to aggregate and earth materials will be collated where available and summarised for up to 2000 individual geological units. In detail, the workstream will undertake:

- Literature and database review of measured rock properties
- Geological units (mapped rock types) characterised in terms of available measured rock properties e.g. range of strength, weatherability, grainsize
- Geological units characterised in terms of their potential to supply one or more of the critical aggregates and material types
- Geological units further subdivided in terms of localised parameters affecting or reflecting aggregate and rock material quality e.g. slope, weathering
- Aggregate potential map dataset made available through web service e.g. alongside the existing GNS Science geological map service
- The deliverables will be:
  - a national engineering and rock property map dataset in GIS format, and as a web feature service layer with appropriate metadata lodged in key catalogues, and
  - a paper and presentation to industry and local government forums and publications.
  - The potential for this information to be developed for use by central and local government to plan access to more proximate supplies of aggregate, thus reducing cost pressures on Government, council and private housing, building and roading projects

## **Workstream 2 - Bay of Plenty regional pilot study**

A pilot study carried out in the Bay of Plenty district will be an exemplar for an approach that ultimately should be applied nationally. It will include consideration of where projects including the Opotiki wharf would be best suited to come from as a source. The study would instigate rock property tests for higher potential aggregate and earth material map units indicated by the national framework workstream. These properties could include information such as rock strength, fabric, weathering, rock defect or slake durability. It would also assess the cohesiveness and other properties of

quaternary deposits (gravels and sands etc.). In detail, the workstream will undertake:

- Building of a regional aggregate and earth material dataset initially informed by the national framework dataset;
- Targeted additional quantifying of physical properties of higher potential critical aggregate and materials e.g. rock strength, fabric, weathering, rock defects and spacing, slake durability, cohesiveness
- Field-based measurements of physical and chemical properties of rock and earth materials;
- Measurements of strength, weathering resistance, density etc undertaken by accredited rock testing laboratories;
- Compilation of a BOP Region aggregate and material dataset made available as a digital map product through a web service and as additional data with GNS Science PETLAB rock and mineral properties database; and
- Refinement of the national framework dataset based on the new BOP region property data.

The deliverables will be:

- regionally enhanced data for the national engineering and rock property map dataset,
- compiled data lodged in GNS Science's Petlab Geoanalytical Database, and
- a paper and presentation to industry and local government forums and publications.
- Potential benefits for Government-funded projects including Bay of Plenty region NZTA funded roading programmes, the Opotiki wharf and any other infrastructure or building projects funded by the Government
- Subsequent regional studies and modelling can be done as further funding comes available.

### **Workstream 3 – Aggregate Resource Model**

An enhanced Aggregate Resource Model will be built that integrates the key datasets needed for aggregate supply for local requirements utilising local, regional and national data. These include the enhanced rock property map data compiled for workstreams 1 & 2 as well as environmental, social, cultural, iwi and financial considerations. In detail, the workstream will undertake:

- Refinement of the existing GIS model to support decisions around medium-long term planning of different aggregate and materials sources based on specific localised needs.

- To build an Aggregate Resource Model that integrates potential and existing aggregate and earth material resource (quality and quantity dimensions), transport distances and infrastructure options, land ownership and consenting, environmental, cultural and social constraints.
- To enable the Aggregate Resource Model to generate a supply scenario for a nominated local requirement for significant quantities of aggregate/material type(s) e.g. sand and basecourse for a 2000 home subdivision in western Tauranga.
- The deliverables will be:
  1. a GIS-based decision support tool that provides scenario-based assessments of aggregate resource based on a combination of user inputs and linked datasets, and
  2. a paper and presentation to industry and local government forums and publications.

The model developed here can be refreshed / refined on a regional basis as additional regional data becomes available.

This information will be invaluable for local Councils when developing Regional and District Plans consistent with the Ministry for the Environment's Draft National Planning Standards. Standardising the plan format and definitions make it easier for councils to write consistent plans across the country and easier for businesses operating across the country to comply. Much of the minerals sector working through multiple planning documents has reported frustration with the challenges of grappling with the differing controls placed on its activities and the data available from this project will enhance the consistency of future planning instruments.

This work will assist local government, iwi, hapū, regional, and other community organisations with access to information on suitable aggregate sources for affordable housing, infrastructure, employment and local business opportunities, encouraging a shared approach to actions or initiatives for a specific community.

## Timetable

The work would start in May 2019. Target completion dates for each workstream are:

- Workstream 1      31 July 2019
- Workstream 2      30 October 2019
- Workstream 3      24 December 2019

## Project Outcomes and Benefits

- A national and consistent view of potential aggregate and earth material resources, with integral GIS-based identification.

- Informed decision-making by regulatory authorities and the construction industry.
- Reduced transports costs where closer aggregate sources are identified.
- Enhanced medium to long-term land use planning.
- Better informed government policy around provincial growth.
- Increased stakeholder, community and iwi understanding of the value of earth material resources and issues around aggregate supply and transport.