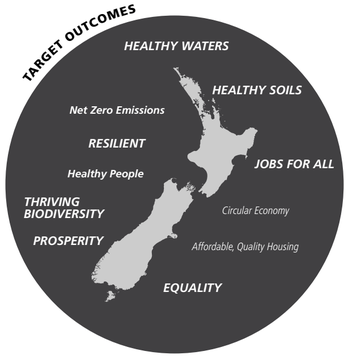
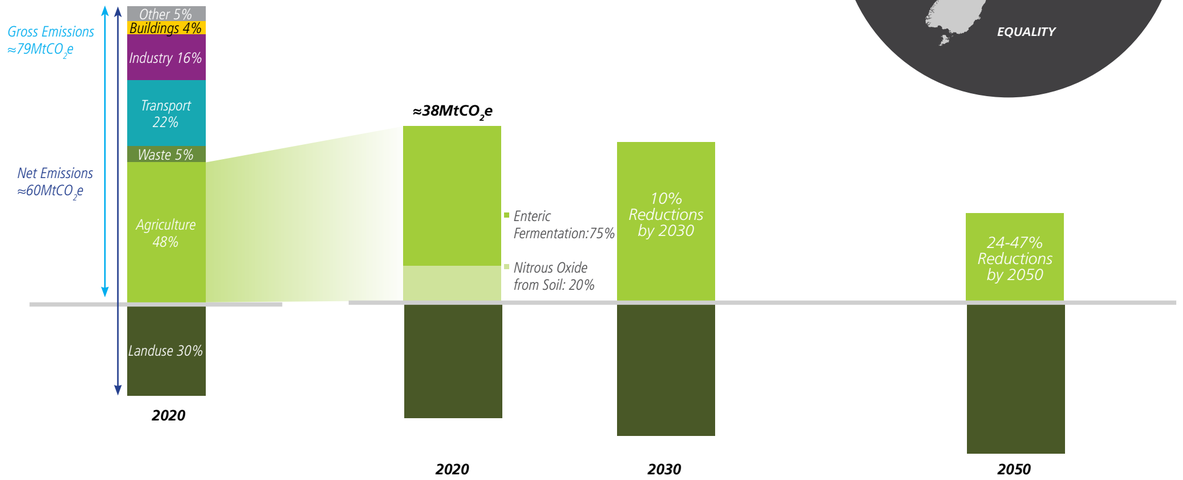
THE CHALLENGE:

- HIGH EMISSIONS
- HEATING CLIMATE
- UNEMPLOYMENT
- HOUSING CRISIS
- DECLINING BIODIVERSITY
- LINEAR ECONOMY
- ECONOMIC INSECURITY
- POLLUTED WATERWAYS
- DEGRADING SOIL

TRANSITION: AGRICULTURE & FORESTRY:

- WATER MITIGATION FOR CLIMATE RESILIENCE
- R&D FOR EMISSIONS MANAGEMENT
- ON-FARM BEST PRACTICE
- GROWTH OF FOREST INDUSTRIES





Transition: Agriculture and Forest Industries

CHALLENGE STATEMENT

Agriculture, Forest Industries and associated primary production are critical to New Zealand's economic future, with $46 billion in receipts projected for FY20. Our nation's primary businesses produce some of the highest quality natural goods in the world, and we can also lead the world in sector sustainability. However, at present, almost half of New Zealand's greenhouse gas (GHG) emissions can be attributed to agriculture. Leadership in this area is essential to retaining a consumer premium perception of New Zealand agricultural produce. This sector is also particularly at risk from business interruption due to climate change effects. It has a central role to play in ensuring sustainable water use; in protecting our fragile soils and enhancing biodiversity, a stewardship role in protecting waterways from nutrient contamination plus an important community role through providing employment in rural areas.

KEY OPPORTUNITIES

Beca's environmental, water, soil, agriculture, and forest industries specialists propose the following key opportunities to support New Zealand's Wave-3 recovery:

Water management, storage and irrigation: Mitigation of the impacts of climate change, including more intense rainfall, longer and more pronounced droughts. Ongoing investment in large-scale water interception and storage for reduction in flood flows and for agricultural irrigation, represents an opportunity to improve resilience to climate change effects and to provide increased management flexibility for our grass-based agricultural systems.

Greenhouse gas emission reduction mechanisms: Under the Zero Carbon Act, emission reductions of 10% are needed by 2030 and 24 to 47% by 2050.[1] The agricultural sector can go part way to achieving this required reduction through on farm practices, however a focus on new technologies and emission reduction mechanisms will be key to meet these targets and support economic growth. Ongoing programmes to support on-farm planting have been estimated to save 7% of total agricultural GHGs (about 2.5MtCO_2e in total).[2] A top priority should be continued sector-wide research and development (R&D) funding to develop mitigations for on-farm emissions, including reducing enteric methane and nitrous oxide release as well as opportunities for carbon sequestration. Biochar should also be a key consideration. Leadership in low-emission agriculture would create an opportunity for new technology revenue streams and will bolster New Zealand's reputation for environmental stewardship.

R&D to promote on-farm best practice: Progressive farmers have been adapting their farming systems to improve the health of land, water and biodiversity for years, and there have been recent regulatory changes to ensure widespread uptake. New Zealand's primary sector is gradually moving from a maximum production focus to one that is more aligned with environmentally and economically sustainable outcomes. Projects for R&D to validate these positive effects and ongoing information sharing, will be critical to accelerate adoption of identified best practice. These projects can be used to create high value jobs through the COVID-19 recovery and will provide our rural economy an enhanced toolbox from which the primary industry can operate and grow in prosperity.

Focus should be on projects that prioritise greater soil health and associated carbon sequestration; improved water infiltration and retention on land, leading to improved sector resilience to the negative effects of climate change; and to projects and programmes for the reduction in nutrient, sediment and bacterial transfer to our waterways.

Expanding forest industries: Wood is a sustainable resource and an important carbon sink and New Zealand has been focused on forest replanting. Net uptake of carbon from combined impacts of land-use, land-use change, and forestry is approximately a third of New Zealand's GHG emissions (net sequestration of ≈23 MtCO_2e/year). Tree plantations are being used to enhance ecosystems and sequester carbon (e.g. through the One Billion Trees initiative).[3] There is a growing resurgence in the use of timber as a commercial product including use as a building material to replace steel and aluminium; the pulp and paper market for global packaging and tissue; wood pellets to replace coal for industrial boilers; and extractives from plants and wood. As the demand for sustainable products continues to grow, the need for wood as a raw material will increase. Expansion of forest industries that support the use of timber as a commercial product should be prioritised during Wave-3 to create jobs through increased local manufacture and processing and increase revenue streams, increasing our carbon sinks and enhance our environment.