You can't manage what you don't measure: National food production inventories

New Zealand

1.1 What problem is your proposition addressing?

Reducing the emissions impact of food production systems requires a national understanding of mitigation opportunities, but also improved measurement and reporting of these agricultural greenhouse gases (GHGs). Many governments lack such capacities, particularly in low- and middle-income countries, reducing the ability of countries to meet their Nationally Determined Contribution (NDC) commitments for the agricultural sector in cost-effective and sustainable ways due to:

- Shortfalls in capacity to develop robust agricultural emissions inventory systems;
- Insufficient good-quality local statistical information;
- Emissions inventory methods being unable to recognise or capture agricultural emission-reduction options; and
- Locally appropriate agricultural emission-reduction or offset options not yet being identified, researched and developed and/or disseminated.

Improving national agricultural greenhouse gas inventories is an essential first step that must underpin any future development of low emissions food systems.

1.2 How does your proposition address the problem?

Through the Global Research Alliance on Agricultural Greenhouse Gases (GRA), New Zealand will support countries, initially in Latin America, Africa and ASEAN, to build the capacity required to better report on their national emissions and contribute to meeting NDCs. Developing regional activities takes advantage of shared climate and common production systems which helps to reduce duplication of effort and shares learnings for extension and implementation across countries.

By the end of the programme, it is expected that countries involved will have robust systems in place for monitoring, reporting and verification of agricultural GHG emissions and that the roll-out of new low emission agriculture systems, technologies and practices has started. Success would be for participating nations to make a measurable contribution to their GHG emission commitments through being better able to quantify their agriculture sector GHG emissions, and by increasingly adopting low emission and productivity enhancing agricultural systems, technologies and practices.

New Zealand welcomes contributions from other partners and will identify synergies where similar initiatives are underway, recognising that global challenges require collective approaches. Improving the quantification of agricultural greenhouse gas emissions under different management scenarios is key to understanding best practice and unleashing breakthrough solutions: you can't manage what you don't measure.

1.3 Is this a new solution or an existing solution that needs scaling?

This is an existing solution that requires scaling up by raising capability and capacity for measuring, monitoring and reporting agricultural greenhouse gases. Agreement by member states at the UN Food Systems Summit to scale up support to strengthen countries' capabilities to better monitor and manage their national emissions could make a significant contribution towards reducing agricultural emissions and help countries meet their NDCs.

1.4 Which organisation/s, institution/s or groups of individuals are associated with the solution?

New Zealand is bringing together donors to raise global food production/agriculture inventories. We are funding work to bring agricultural inventories up to Tier 2[1] in some ASEAN, Southern and Eastern African, Latin American and Pacific countries through the GRA and welcome others to join this solution. The GRA is an alliance of 64 member countries from all regions of the world and 24 Partner organisations that includes regional research institutes, farmer organisations, development banks and multilateral fora including the FAO, and IPCC.

1.5 What is the scientific evidence that supports your proposition?

Scientists have a good understanding of how emissions increase in line with changes in animal productivity, which affects feed intake (especially important for methane) and the amount of nitrogen excreted. This combined with good quality data on agricultural productivity and animal population changes means New Zealand's inventory provides clear, reliable evidence of trends in agricultural GHGs. The inventory also includes nitrous oxide emissions from crop residue returned to the soil, cropland cultivation and cropland burning. Agricultural GHG inventory is an essential and robust tool to show changes in absolute emissions, and in emissions intensity, meaning there can be reasonable certainty about whether emissions are increasing or decreasing.[2]

1.6 Is this idea applicable to a particular geography, demography, landscape or other type of setting?

This proposal is applicable to agricultural landscapes.

1.7 Who are the main actors that would put this action into place?

The main actors to put this action into place are the GRA partners, with targeted technical expertise from New Zealand. The GRA works to increase international cooperation and investment, bringing countries together to find ways to reduce the emissions intensity of agricultural production systems and increase the potential for soil carbon sequestration, and improve efficiency, productivity, resilience and adaptive capacity, thereby contributing in a sustainable way to overall mitigation efforts, while helping meet food security objectives.

Source and process

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[1] A Tier represents a level of methodological complexity. Tier 2 is intermediate and requires a more structured system that better reflects national agricultural production systems and can be improved as a country collects more accurate data in production and also develops their own emissions factors.

[2] https://www.nzagrc.org.nz/policy,listing,412,what-is-a-national-ghg-inventory.html