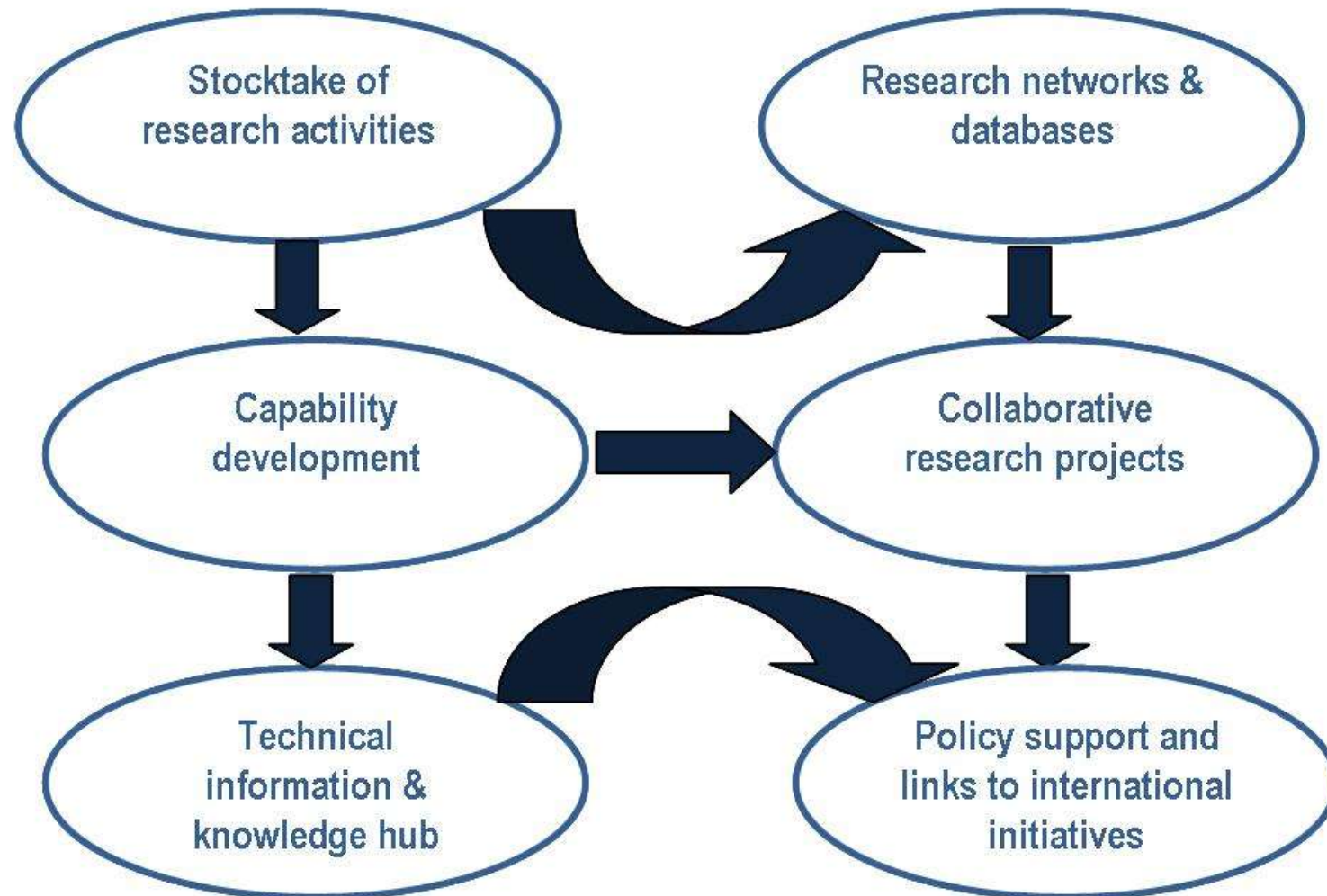


## LRG Work plan – current and completed activities (updated 17 December 2012)



## Appendix 1: LRG Work plan – current activities (updated 17 December 2012)

Note: project numbers have been updated, only current on-going or new activities are included in this work plan. See Appendix 2 for completed actions by the LRG.

ID	Short term activities	Lead / participating countries	Timeline	Progress	Role of the LRG (undertake / facilitate / influence)
<b>Actions on the Stocktake</b>					
S1	Discontinue full annual stocktake; use LEARN network and its contact database, and additional contacts suggested by country delegates to provide project-specific information and contact details	New Zealand, with support from all LRG members	<i>On-going</i>	Country delegates will continue to be approached for additional contacts to be registered for LEARN	Undertake
S2	Solicit feedback on options for the future of the LEARN network (substantial improvements, continuation as is, discontinuation)	New Zealand to circulate options paper to LRG members	<i>Options paper circulated in December, feedback January 2013</i>	Options paper drafted and circulated	Undertake
<b>Actions to build Capability and Capacity</b>					
CC1	Compilation of information on other relevant training and fellowship opportunities for the Livestock Group, made available via the website	New Zealand / Secretariat with input from all LRG members	<i>On-going</i>	Summary information circulated as background paper for LRG (available on LRG closed website). To be updated with information provided by LRG members	Undertake
CC2	Capacity building and training workshops on measurement and mitigation of GHG	Led by New Zealand with support from other LRG members, host countries and international organisations (I&M Group; ILRI, CCAFS, IPCC)	<i>On-going</i>	Two capability building projects are being planned for Central America and the Caribbean (planning meeting early 2013) with support from FONTAGRO. Regional workshop planned for central and eastern Europe (second half of 2013); longer term exploration of options for south Asia.	Undertake / facilitate
CC3	Newly launched 'Global Research Alliance Senior Scientist (GRASS) Awards' to build capacity and mutually beneficial partnerships between New Zealand and other Alliance member countries	New Zealand, all Alliance members	<i>Open-ended application process</i>	Launched at the Rome summit. Applications being received and processed. Developing promotion opportunities including through LRG members	Facilitate
CC4	LEARN (Livestock Emissions Abatement Research Network) Trainee and Post Doctoral Fellowships to build capacity and capability in developing countries through training in New Zealand research institutions	New Zealand, all developing countries	<i>Open-ended application process</i>	Scheme revised to include technician, post-graduate and post-doctoral fellowships. Developing promotion opportunities including through LRG members	Facilitate
CC5	Global Research Alliance Borlaug Fellowships to build capacity and capability in developing countries through training in USDA institutions and/or US universities	USA, all Alliance developing country members	<i>Open-ended application process</i>	Ongoing – being promoted through LRG newsletter	Facilitate

CC6	FONTAGRO project underway to reduce in Latin America to reduce the uncertainty in national GHG beef cattle inventories, test mitigation options and strengthen research capacities	Argentina, Chile, Colombia, Dominican Republic, Uruguay	2014	Funding in place and project has started. Paper outlining project presented at NCGG6 Alliance session.	Influence
CC7	SE Asia project development	Thailand, Indonesia, Vietnam, Malaysia, New Zealand	<i>Completion of pilot project by June 2013</i>	Pilot project to identify appropriate livestock classification systems and estimated emissions across the region, with identification of key areas for improvement and options for identification of mitigation options; funded by New Zealand.	Facilitate
<b>Actions on Information and Technology Transfer</b>					
IT1	Co-authoring of a best practice guide to CH4 measurements using SF6 tracer technique for distribution to all Alliance members	Argentina, Australia, Brazil, Canada, France, Ireland, New Zealand, USA, UK	<i>mid 2013</i>	Project started in October 2012. Experts interested in contributing to the best practice guide invited to contact the Secretariat.	Undertake
IT2	Co-authoring of a best practice guide to using chambers to measure N2O emissions from soils for distribution to all Alliance members	Argentina, Australia, Canada, Chile, Denmark, Japan, New Zealand, UK, Uruguay, USA	<i>December 2012</i>	AgResearch (NZ) has been contracted to coordinate and act as editor for the manual which will be completed by the end of 2012.	Undertake
IT3	Contributions to a best practice guide on soil C stocks, coordinated by the I&M Group	Led by Australia and Canada; contributions by interested and relevant experts from LRG	<i>Detailed scoping paper in January 2013; completion target date to be confirmed</i>	Appropriate expertise needed to reflect issues specific to soil C stocks under grazed pastures and fodder production; also issues of land-use change; role of forestry? Formal role of LRG and next steps to be discussed at LRG co-chairs conference call	Influence
IT4	Co-authoring of a best practice guide to using micrometeorological techniques for measuring emissions from grazing animals for distribution to all Alliance members	Discussed at the I&M Group meeting	<i>Subject to further consultation</i>	I&M Group considered this at its recent meeting, and will consult further with Research Groups on interest and relative priority. LRG will then decide next steps.	Undertake / Influence
IT5	Co-authoring a best practice guide to measure emissions from manure in all stages of the manure chain for distribution to all Alliance members	Led by the USA via MMG, with inputs from interested members and experts	2013	First steps to be discussed between leader Matt Smith and MMG co-coordinator	Facilitate via MMG
<b>Actions on Networks and Databases</b>					
ND1	Continued operation of a Manure Management Network	Coordinated by the Netherlands and Vietnam with input from all interested countries	<i>On-going</i>	First meeting held in Rome (3-5 Sept 2012). For further information on the meeting, the membership and goals of the network contact: <a href="mailto:Theun.Vellinga@wur.nl">Theun.Vellinga@wur.nl</a>	Facilitate

ND2	Continued operation of a network on feed and nutrition in relation to greenhouse gas emissions	Coordinated by Switzerland and the Netherlands, with input from all interested countries	<i>On-going</i>	First meeting held in Zurich, Switzerland (1-3 Sept, 2012). For further information on the meeting, the membership and goals of the network contact: <a href="mailto:Michael.Kreutzer@inw.agrl.ethz.ch">Michael.Kreutzer@inw.agrl.ethz.ch</a>	Facilitate
ND3	Continued operation of a network on animal selection, genetics and genomics	Coordinated by Australia and New Zealand, with input from all interested countries	<i>On-going</i>	Meeting held in Cairns, Australia (July 21, 2012). For further information on the meeting, the membership and purpose of the network, see website: <a href="http://www.asggn.org">www.asggn.org</a>	Facilitate
ND4	Continued operation of a network on rumen microbial genomics	Coordinated by New Zealand, with input from all interested countries	<i>On-going</i>	Meeting held in Clermont Ferrand, France, (July 2, 2012). For further information on the meeting, membership and purpose of the network: <a href="http://www.rmgnetwork.org.nz">www.rmgnetwork.org.nz</a>	Facilitate
ND5	Establishment of a network on the links between animal health status and greenhouse gas emissions intensity (similar to networks ND1-4)	Coordinated by the UK, with input from all interested countries	<i>On-going</i>	Next steps to be taken by UK, including appointment of network leader, co-leader, invitations to expert membership	Facilitate
ND6	Scoping of the utility and purpose of a network on grasslands and their potential contribution to mitigation GHG emissions from livestock	Uruguay, NZ, Ireland, US	<i>Scoping paper to be presented at 2013 LRG meeting</i>	Interested countries to develop first draft scoping paper	Undertake
<b>Actions on Research Collaboration</b>					
RC1	Identification of low CH <sub>4</sub> emitting phenotypes: Optimising genetic, genomic and phenotypic measurement parameters in cattle and sheep through international collaboration	New Zealand, Australia, UK, other interested countries	<i>2014</i>	A postdoctoral fellow has been appointed to help develop common measurement protocols to rank low-emitting animals and to establish trait definitions and breeding objectives to deliver reduced emissions intensity via animal selection and breeding.	Facilitate, via ASGG network
RC2	Characterising rumen microbial community diversity; utilising the combined resources of the Alliance to underpin mitigation efforts	New Zealand and at least 15 other countries and participating institutions	<i>2014/15</i>	This project will (a) develop a taxonomic framework for rumen bacteria; (b) undertake a global survey of rumen microbial diversity, ( <a href="http://www.globalrumencensus.org.nz">www.globalrumencensus.org.nz</a> ); and (c) a catalogue of 1000 rumen microbial reference genomes via the US Joint Genome Institute ( <a href="http://www.hungate1000.org.nz">www.hungate1000.org.nz</a> ).	Facilitate, via the RMG network
RC3	Linking with the EU Joint Programming Initiative on Food Security, Agriculture and Climate Change	France (for JPI) and other interested Alliance members	<i>Under development</i>	MOU for a joint research call involving the EU Joint Programming Initiative on Food Security, Agriculture and Climate Change (EU JPI FACCE) and other non-European countries has been signed. Call for proposals expected in early 2013.	Influence

RC4	Extension of the AnimalCHANGE network wider than the actual project partners	France and project partners	<i>On-going</i>	Linking microbial and microbial genomics databases in progress. Additional funding for the AnimalCHANGE network has been received and therefore the programme will be asking for more partners. If countries are interested in joining and are not directly contacted by AnimalCHANGE in due course, they should contact the Secretariat.	Influence
RC5	Input to Animal Task Force research priorities for Horizon 2020 Projects	Netherlands	2013	The Task Force is currently discussing the research priorities that they will suggest to be included as part of the EU Horizon 2020 research framework. The Netherlands will seek feedback on ideas for this.	Influence
RC6	Deep sequencing the rumen microbiome	Led by NZ, Australia, USA, Ireland and France	2015	Collaborative project to deep sequence the rumen micro-biome to better understand the processes that contribute to methane formation in sheep and cattle.	Facilitate, via the New Zealand Partnerships Fund and other participating countries
RC7	Accelerated discovery of methanogen-specific inhibitors	Led by NZ, Australia, USA and Japan	2015	The main goal of this project is to develop a high-throughput screening method for rapidly identifying novel anti-methanogen inhibitors, based on the efficient testing of inhibitors against methanogens growing in 96-well culture plates.	Facilitate, via the New Zealand Partnerships Fund and other participating countries
RC8	Vaccine to reduce methane emissions in ruminants	NZ	2015	A leading New Zealand research team will aim to identify adjuvants (substances that trigger production of antibody responses to the vaccine) to produce a vaccine which targets methanogens in the rumen	Facilitate, via the New Zealand Partnerships Fund and other participating countries
RC9	Animal delivery of DCD in urine by provision in feeds	Led by NZ, Australia and Ireland	2015	A cost-effective nitrous oxide mitigation technique, based on animal delivery of the nitrification inhibitor dicyandiamide (DCD) in urine via provision in feeds, will be evaluated in field plot and grazing system studies across different locations in NZ, Australia and Ireland	Facilitate, via the New Zealand Partnerships Fund and other participating countries

RC10	Further evaluation and improvement of the C-Lock system for rapid screening of low-emitting animals	Australia, NZ, UK	2014	Further evaluation and improvements of the Greenfeed™ system to measure CH4 emissions from individual grazing animals, under different grazing conditions and animal behaviours. Exploration of potential to use the system for sheep.	Facilitate, via funding by the supporting governments and research organisations
RC11	Development of a biofilter system to mitigate methane emissions from small manure ponds	Led by NZ, with Canada, Australia, potentially others	2015 (to be confirmed)	NZ researchers have developed a prototype bio cover, in which methanotroph bacteria could at very low cost reduce or eliminate methane emissions from small manure ponds where capture for energy generation is not cost effective. The project would aim to see if this can be developed into a low-cost widely applicable technology. Next steps to be discussed.	Facilitate, via funding by supporting governments and potentially MMG
RC12	Feasibility of using predicted soil water status to help mitigate N2O emissions from grazing land	Led by NZ, with potential contributions from Ireland, UK, Chile, Australia	2015	Project to explore the feasibility of using information about predicted soil water status to influence grazing and fertiliser management decisions to reduce N2O emissions. Project scope to be developed and best funding mechanism to be identified; NZ government agreed to support the project in principle.	Facilitate, via appropriate funding mechanisms
RC13	Scoping of research project on barriers to adoption of no-cost mitigation actions	Led by NZ, with input and support from interested countries	2015	Project would seek to understand why some options that the scientific literature identifies as bringing net economic benefits to farmers remain un-adopted in practice. NZ has circulated a detailed scoping note requesting feedback and expressions of interest from other countries	Facilitate, via appropriate funding mechanisms
RC14	Manure Management Improvement Program	Led by the Netherlands via MMG and FAO with input and support from interested members and countries from Livestock Dialogue	2013-2016	Program to Improve manure management (storage, energy- and nutrients recovery and application) to improve income generation and food security, and to reduce environmental impacts like GHG emissions	Facilitate via MMG network
RC15	Use of Animal GRACEnet as a network for researchers to connect and share experiences and support	USA, with participation from all interested scientists	2013	The US ARS offered to open up the Animal GRACEnet network to non-US researchers, to enable researchers to share experience and support. Further options will be explored by the LRG co-chairs with the US.	Influence

Actions on Policy Support and Linkages with International Organisation					
PS1	Contribution to IPCC 5 <sup>th</sup> Assessment Report via expert review and provision of literature	All interested experts	<i>Various deadlines in 2013</i>	A note has been circulated to LRG representatives outlining the ways in which experts in the LRG research networks can contribute to the current IPCC 5 <sup>th</sup> Assessment Report	Influence
PS2	Joint workshop with the SAI Platform to scope options and opportunities for engagement	Co-chairs and key invited experts	<i>Before LRG meeting in 2013</i>	Scoping underway for suitable date and venue for the workshop that ensures good participation by key experts	Undertake
PS3	Collaborate with FAO in developing the GLEAM model to estimate global mitigation potential	Co-chairs and experts in LRG member countries	<i>On-going</i>	Discussions underway to clarify the specific ways in which the LRG could contribute to the on-going FAO model development; e.g. by soliciting input from country experts on emission factors and mitigation potentials	Undertake / facilitate
PS4	Sharing experiences in engaging with farmers and promoting the adoption of mitigation practices	Co-chairs via LRG newsletter and at LRG meeting	<i>Newsletter: on-going LRG meeting: 2013</i>	We will showcase country experiences in engaging with farmers, discussing successes and barriers in the LRG newsletter, and will schedule a dedicated session at the next LRG meeting to share experiences and discuss possible next steps the LRG could take. See also RC13.	Undertake

## Appendix 2: LRG Work plan – completed activities (updated 17 December 2012)

Short term activities	Lead and/or participating countries	Status/conclusions
A technical manual on alternative designs for low cost CH4 respiration chambers	Australia, Belgium, Brazil, Canada, Denmark, Ireland, New Zealand, Spain, UK	<i>The project is complete and the manual is available to download on the <a href="#">LRG website</a>. However, scientists can still contribute to the manual and should be encouraged to contact the editor, <a href="mailto:cesar.pinares@agresearch.co.nz">cesar.pinares@agresearch.co.nz</a></i>
Rapid-low cost automated enteric CH4 measurement	Australia, Canada, New Zealand, USA, UK	<i>A brief report evaluating the use of the Greenfeed System for New Zealand agricultural systems is available to download from the <a href="#">LRG website</a>.</i>
Capability building workshops for 2012	Led by NZ, with support from Canada, France, Netherlands, Australia and collaboration with I&M Group and international organisations.	<i>Workshops held for south-east Asia (Bangkok, March 2012), east Africa (Nairobi, September 2012), west Africa (Accra, November 2012). Pilot project as follow-up step from south-east Asia workshop initiated (see CC7).</i>
Continued basic analysis of stocktake results	New Zealand, supported by all countries providing annual stocktake updates	<i>Summary of stocktake analysis and issues regarding future updates completed and presented at LRG Amsterdam meeting. LRG decided to discontinue annual stocktake and instead updated approx every 5 years. New Alliance member countries will be approached to complete the stocktake as most countries had found the process valuable for internal coordination purposes. Stocktake statistical analysis will be updated routinely with this new information.</i>  <i>LEARN network to be used to facilitate researcher-to-researcher contacts with open access to information for all LEARN members (see current activity S1).</i>
Detailed analysis of stocktake results regarding: <ul style="list-style-type: none"> <li>• Mapping of research efforts compared to other data e.g. livestock emissions / animal populations / (regional) diversity in production systems / economic value</li> <li>• identify specific capability needs in developing countries</li> <li>• better understand the differences in project size and duration</li> </ul>	Chile, Uruguay, Mexico, UK	<i>Papers presented at NCGG-6 Alliance sessions. Papers and presentations offering draft results to be made available via closed LRG website subject to agreement by authors of individual analyses.</i>  <i>Stocktake data can be made available to country delegates for additional analysis upon request to the Secretariat, but country-specific information cannot be made public without consent from that country.</i>
Establishment of a Rumen Microbial Genomics Network	Australia, Argentina, Canada, France, Ireland, Japan, New Zealand, UK, USA, Netherlands	<i>Network established – on-going. Coordinated by New Zealand</i>  <i>Initial workshop held and decision to form a network agreed. For on-going work in this network, see ND4</i>
Establishment of an Animal Selection, Genetics and Genomics network	Australia, Canada, Ireland, Netherlands, New Zealand, USA, UK	<i>Network established – on-going. Coordinated by Australia and New Zealand</i>  <i>Workshop held and report completed. For on-going work see ND3</i>
Establishment of a feed and nutrition network	Switzerland and others	<i>Network established coordinated by Switzerland and the Netherlands and first meeting held. For on-going work see ND2</i>
Establishment of a manure management network	Netherlands and others	<i>Network established coordinated by the Netherlands and Vietnam and first meeting held. Relationship and collaboration with FAO Dialogue clarified. For on-going work see ND1.</i>



Scoping of a network on the link between animal health status and greenhouse gas emissions intensity	UK	<i>Scoping meeting held, scoping paper submitted to LRG; network has been agreed and will now be established, led by the UK.</i>
Development of a global database of rumen microbial community structures	Argentina, Australia, Brazil, Canada, Chile, Colombia, Dominican Republic, France, India, Ireland, Mexico, New Zealand, Peru, Uruguay, EU members involved in Animal Change	<i>Insufficient international interest to make database an efficient option but strong interest in a collaborative project looking at rumen microbial community diversity</i>  Follow-up collaborative research project: see current activity RC4
Technical Synthesis report on manure management options	Netherlands with other Alliance countries	<i>Paper presented at NCGG6 (to be made available via closed LRG website)</i>
Technical Synthesis report on feed and nutrition options	Netherlands, Switzerland with other Alliance countries	<i>Paper presented at NCGG6 (to be made available via closed LRG website)</i>
General identification of critical factors related to GHG emissions, options for mitigation, and the impacts of options	All countries, led by the Netherlands and New Zealand	<i>Paper presented at NCGG6 (to be made available via closed LRG website)</i>