SUMMARY
UNIDO INDIAN STUDY TOUR PROGRAMME
NEW ZEALAND
29 October – 2 November 2018

THEME	SUMMARY	PRESENTER CONTACT DETAILS
General summary of the study tour	New Zealand has a small population with only 5% human population and the rest is animal. New Zealand is very dependent on its nature. Therefore energy efficiency and reduction of emission is key priority to manage sustainability of livelihood (rather than cost)	Johan Potgieter Professor of Robotics School of Engineering & Advanced Technology Massey University J.Potgieter@massey.ac.nz 021 709 403
Attachment: 1. Overview of the Study Tour_Massey University_Johan Pottgieter		

General overview of energy use in NZ	The main focus of energy efficiency in dairy sector in New Zealand is done at the level of farming.
	On the side of manufacturing, some of the measures including:
	• Variation rate irrigation
	• Nutrient management
	• Water heating Chemical CIP
	  ○ Solar
	  ○ Heat pumps
	  ○ Heat recovery e.g. refrig.
	  ○ desuperheaters
	• Methane capture
	• Variable speed pumping
	• Refrigeration optimisation
	  ○ New milk cooling regulations
	  ○ Insulation
		Don J. Cleland
		Professor of Process Engineering
		School of Engineering & Advanced Technology Massey University
		Ph: +64-6-350 5240
		Mobile: +64-21-535 940
		Email: d.cleland@massey.ac.nz

Attachment: 2. NZ Energy Use in Dairy Sector_Massey University_Don Cleland		
Overview of agriculture sector in NZ	NZ exported 95% of its dairy. Therefore there is a lot of emphasis on ensuring food safety and regulating the product to be fit for export	Felicity Bloor Ministry of Primary Industry Felicity.Bloor@mpi.govt.nz
Attachment: 3. NZ Agriculture Sector Overview_MPI_Felicity Bloor		
Overview of technology innovation in dairy sector	NZ encourages continuous innovation in dairy sector to increase productivity, improve revenue and reduce energy and water use by developing a Primary Growth Partnership Program – which is a public private partnership program	Tess McCawe Ministry of Primary Industry Tess.Mccawe@mpi.govt.nz
Attachment: 4. NZ Primary Growth Partnership Program_MPI_Tess McCawe		

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Regulation in Dairy Sector in NZ	Energy efficiency measures have to be done with balance to food safety and risk management program that regulates the following: o Siting, design and construction o Equipment specifications o Milk harvesting activities o Animal health management o Veterinary oversight o Farm dairy water quality o Milk cooling o Control of chemicals o Monitoring of milk quality	Natalie Collins Ministry of Primary Industry Natalie.Collins@mpi.govt.nz
Attachment: 5. Dairy Sector Regulation Overview_MPI_Natalie Collins		
Energy Efficiency Authority body in NZ	EECA is the authority body in NZ on energy efficiency. It works with company on a partnership basis to encourage energy efficiency technology adoption including the most recent technology demonstration projects: o Fonterra: Co-firing biomass at its Brightwater factory o Synlait: NZ's first installation of a large electrode boiler (nominally 6 MW, upgradeable to 12 MW) at its Dunsandel factory	**Michael Henry** Senior Strategy and Programme Adviser Energy Efficiency and Conservation Authority (EECA) www.eeca.govt.nz | www.energywise.govt.nz | www.eecabusiness.govt.nz DDI: +64 4 470 2224| Mob: +64 21 241 5846
Attachment: 6. Synlait electrode boiler_EECA_FactSheet & 7. Overview of NZ Energy Efficiency Conservation and Authority_EECA_Michael Henry		
Example of energy efficiency technology	Farm IQ is a technology to do farm management and measurement of various component such as: animal health, energy, water and effluent, etc. By measuring the components, farm managers can better work to reduce the emission. By using Farm IQ, Milk processors have better visibility of the quality of the milk and security of supply.	Collier Isaacs FARMIQ M. 027 444 5412 | E. collier.isaacs@farmiq.co.nz

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Attachment: 8. Farm Management Technology_FarmIQ_Darryn Pegram		
Reduction of Emission in Dairy Sector	The focus of emission reduction in dairy sector in New Zealand is on the farm side – because it's the most significant contributor to emission	Harry Clark Director NZ Agriculture Greenhouse Gas Research Center trina.bishop@nzagrc.org.nz
Attachment: 9. Reducing Emission in Agriculture Sector_GHG Research Centre_Harry Clark		
Improving productivity through breeding technology in NZ	The best method of reducing resource consumption to obtain the same output (milk or revenue) is by improving the productivity of each animal. One of the means to do that is by employing better breeding technology: Average New Zealand Cow (DairyNZ Stats 16/17) 4,217 litres milk 368 kg milk solids 4.75% Milkfat 3.82% Protein Consumes 5 ton dry matter feed 85% of feed is grazed pasture +15% conserved feed: hay, grass silage, maize silage	Kapy Macown Fonterra Kapy.macown@lic.co.nz
Attachment: 10. NZ Breeding Technology_LIC_KapyMacown		
Best Practices in Energy Efficiency	Fonterra is committed to reduce its energy consumption both at farm and processing level. Some of the goals: **Reduce Energy Use**: 20%improvement in energy intensity by 2020(FY03 baseline) **Reduce Water Use**: 20% Reduction in Water Intensity by 2020(FY15 baseline) **Reduce Emissions**: 30%reduction in absolute emissions by 2030 (FY15 baseline) o No new coal boilers to be installed post-2030 o **Net Zero** emissions by 2050	Frederick Conquer Fonterra Frederick.Conquer@fonterra.com

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	Implement Leading Industry Standards for Wastewater: All sites to be operating at leading discharge standards by **2026** Fonterra also actively working to innovate their products through the R&D team who has their own mini plant site.	
Attachment: 11. Best Practice_Fonterra_Fonterra Team		

ADDITIONAL CONTACTS:

Melany Tedja
Partner Manager, NZ Government to Government Partnership (G2G)
Melany.Tedja@nzte.govt.nz
021 194 6916

Dr Nicola Brown
School of Engineering & Advanced Technology Massey University
N.Brown@massey.ac.nz
021 159 6884

Dr Matt Sells
School of Engineering & Advanced Technology Massey University
M.D.Sells@massey.ac.nz
021 1713044