

New Zealand Aid Programme Geothermal Energy

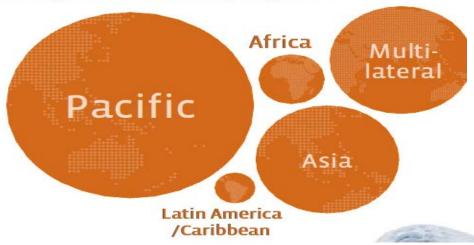
Merinda-Lee Hassall, Development Manager

June 2017



\$550 m New Zealand's annual aid budget

Budget allocation by region:







MFAT Vision



Renewable Energy Investment Priority

"Expand access to affordable, reliable and clean energy"

Pukapuka Solar Farm - Jan 2015 - Cook Islands



Crowded space...











New Zealand Geothermal

- New Zealand expertise in R&D, drilling, manufacturing, suppliers, construction, development.
- 10 GW installed capacity, approx 17% of NZ's electricity supply
- Aid programme focus on utilising NZ's experience and expertise
- Special Envoy for Renewable Energy promotes geothermal.



Nga Awa Purua (2010) – 140 MW, Triple Flash single steam turbine



New Zealand Geothermal

- New Zealand is small donor = strategic, unique, smart, niche
- New Zealand recognises four factors that assist geothermal development
 - 1. Well characterised geothermal resource
 - 2. Adequate human and engineering resources
 - 3. An investment enabling regulatory process
 - 4. Access to finance (equity, debt) & opportunity to leverage.



Indonesia

- Indonesia has 40% of world's geothermal energy potential
- Government of Indonesia plans to install additional 5500MW by 2025
- New Zealand and Indonesia 35 year history of cooperation
- 1. Geo-INZ- technical assistance and capacity building activities (\$10million over 5 years)
- 2. NZSTIGS –Pilot course training for geothermal well drilling for Trades, Technicians and Plant Operators. Larger programme to design training framework, competency standards
- 3. Scholarships



Caribbean

- New Zealand provides technical assistance to the Caribbean
- St Lucia, Grenada,
 Dominica, St Kitts & Nevis,
 St Vincent & Grenadines





Caribbean





Caribbean Projects

		Dominica	Grenada	Nevis	Montserrat	St Kitts	St Lucia	St Vincent
Phase	Project size	7MW	12-15MW	6-9MW	3-5MW	12- 15MW	30MW	10-12MW
1	Surface exploration	100%	80%	100%	100%	80%	75%	100%
2	Exploration drilling	100%	2018	70%	100%	2019	2019	2017
3	Production drilling	100%		2017	2016			
4	Construction	2017/18						
5	Operation	2019						



Caribbean Projects

- New Zealand geothermal adviser based in St Lucia 2014-16.
- NZ project examples:
- St Lucia: surface geothermal exploration, aerial survey work to model geothermal resource potential.







Caribbean Projects

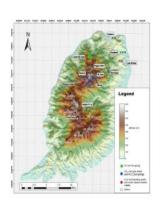
NZ project examples:

- Grenada: surface exploration, infrastructure and drilling plan
- St Vincent and Grenadines: business case for geothermal
- Caribbean Development Bank:
 Geo-smart Facility

Government of Grenada

Geothermal Resources Development Roadmap
Conceptual 3x5MWe project at Mount St. Catherine





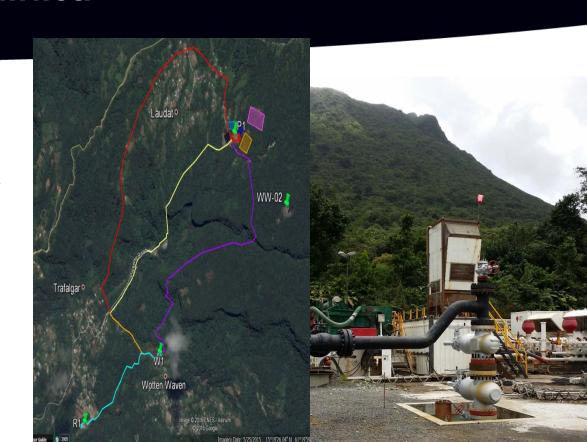


Prepared by Jacobs New Zealand Ltd with support from New Zealand Aid Programme - December 2015



Dominica

- Government lead 7MW plant underway.
- NZ involved in feasibility study update, ESIA, tender documentation.
- NZ Project Manager in Dominica Geothermal Development Company (DGCD).





Africa Projects

- NZ Africa Geothermal Facility, AGF (NZD10 million) over 5 years
- AGF will provide geothermal technical assistance and capacity building to 11 countries in East Africa
- AGF established under the MFAT and Africa Union Commission partnership arrangement.
- A Project Manager will be based in Addis.



Africa - Comoros

- Partnership with Government of Comoros, UNDP and New Zealand
- Geothermal resource estimated 40MWe
- Successful Comoros application to Geothermal Risk Mitigation Facility (GRMF)
- To date USD18million for surface exploration and test drilling



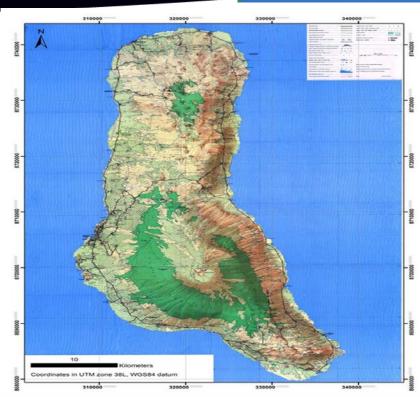


Africa - Comoros



Base camp at Karthala, Grande Comoros







Pacific

- New Zealand has limited engagement in geothermal in the Pacific but continue to monitor developments in Fiji, Solomon Islands and PNG.
- NZ has provided technical assistance such as ESIA to support the Government of Vanuatu



Geothermal Scholarships

- New Zealand Aid
 Programme Geothermal
 Scholarships
- University of Auckland, Geothermal Institute



Geothermal Institute field trip



MFAT Energy Panel



Supplier panels

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- > Our approach to aid
- > Humanitarian action
- > Working with the aid programme
- > Contestable funds
- > Tender opportunities
- » Supplier panels
- > Awarded contracts

A panel is a list of pre-approved suppliers that offer services required by the New Zealand Aid programme. There are five supplier panels that support international development.

Supplier Panels are the preferred method for sourcing suppliers.

How to get on panel

Panels are established through an open competitive tender process advertised on GETS. Each panel has agreed terms and conditions. Some panels are 'open', meaning the number of suppliers on them may be increased from time to time to meet



THANK YOU



Students at Wairakei borefield, MB Century Drilling Rig