Powered by the sun – a clean, green, stable cost effective power solution for eye care. An example from the Solomon Islands.

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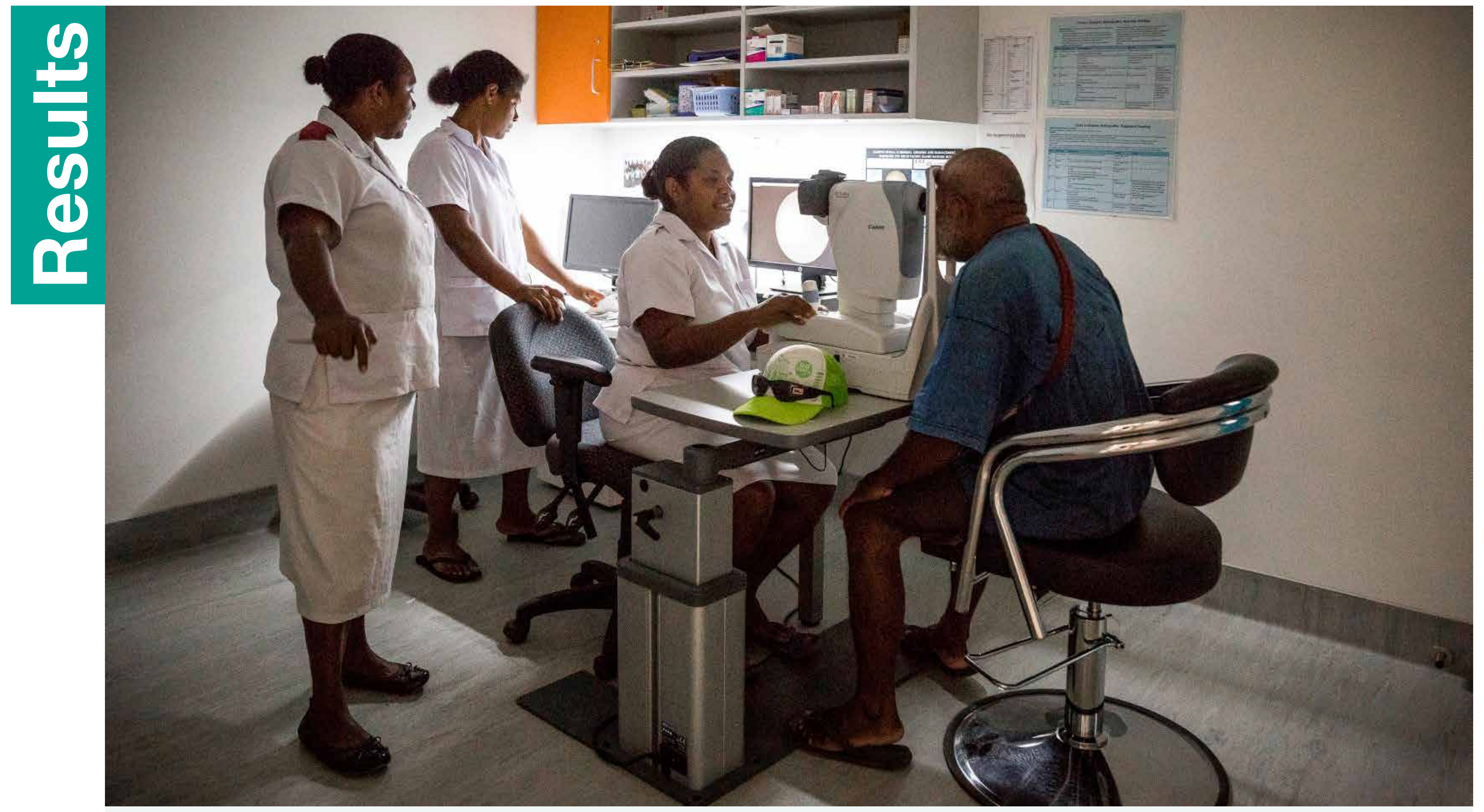
Aim

The Fred Hollows Foundation NZ in collaboration with the Solomon Islands government and the New Zealand Ministry of Foreign Affairs & Trade agreed to build a 900 m² Regional Eye Centre (REC) at the National Referral Hospital in Honiara. Critical design challenges included meeting international cyclone and earthquake standards as well as being resistant to the notorious termites. Of all however, the most significant was providing a clean, stable, 'green', cost-effective power supply solution to protect expensive, sensitive eye care equipment and beat the exorbitant cost of grid supplied power.

Methods

A New Zealand timber building system which could be shipped from New Zealand met the building regulations. However the medical requirements of HEPA filtered, positive pressure air-conditioning specified for the theatre in addition to other air-conditioning, lighting and sensitive equipment meant that the power use would be expensive if grid power was used. So a purpose specific solar power system was recommended and selected, despite concerns raised about reliability and the technology's suitability for a public health facility in the Solomon Islands.

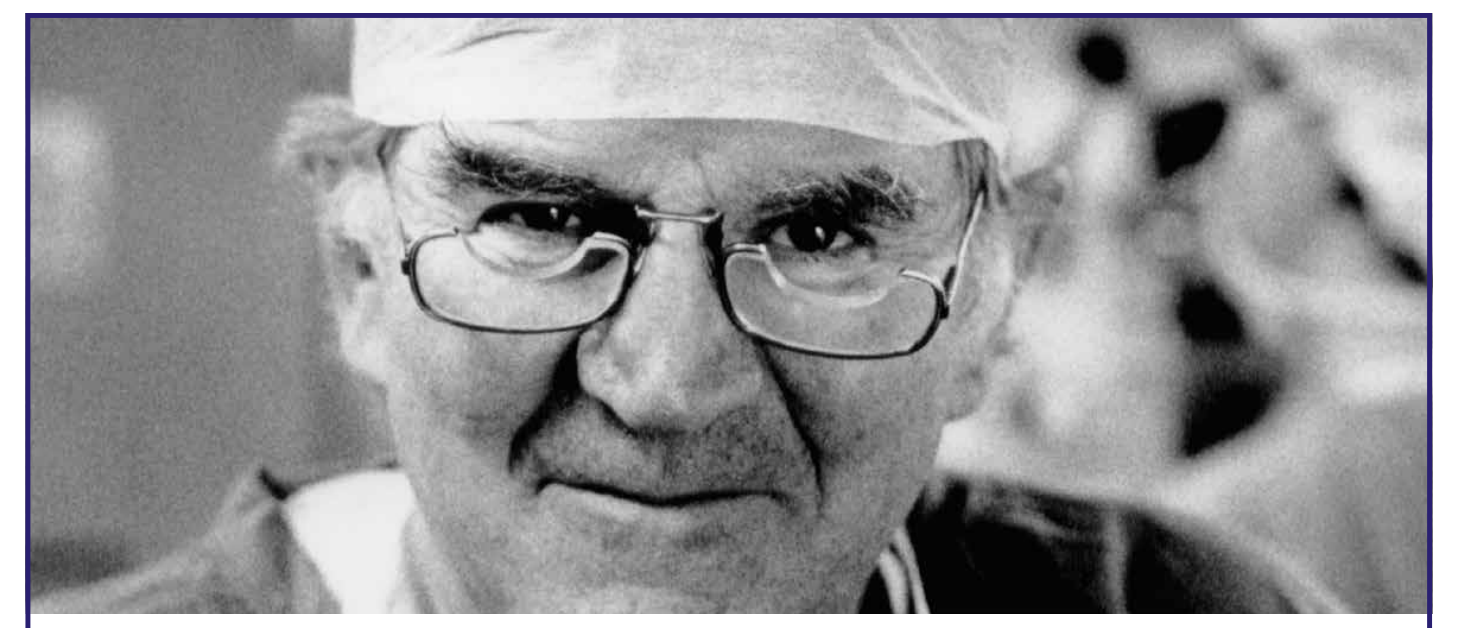
Results



With the average daily temperature above 30 degrees centigrade and the entire roof (800 m²) being covered in solar panels, the system is capable of producing up to 450kw/day. This generates savings of US$400/day at current Solomon Island prices repaying the original investment within five years. Of even greater value are the twin benefits of reliability and stable power without surges damaging sensitive equipment. Currently the REC only uses 270kw/ weekday with significant additional capacity to compensate for overcast days. Therefore usage of the backup diesel generator is minimal.

Conclusion

Whilst the REC has only been in operation for 18 months, our assessment thus far, in comparison to other clinics which we have built and managed in the region, is that solar power is a dramatic improvement over unreliable grid supply. Solar provides a very cost effective 'green' solution to the need for reliable, clean power for eye care facilities if funding for the initial investment can be secured. The system is exceeding our expectations and is, in our view, a model for eye care facilities in the developed and developing world where suitable maintenance services are available.



Acknowledgements

- New Zealand Ministry of Foreign Affairs and Trade.
- The Government of the Solomon Islands.
- Bossley Architects.
- International Timber Construction Solutions.
- What Power Crisis?

Discussion

The Fred Hollows Foundation NZ

Our vision is a world where no one is needlessly blind