



Contribute to the Sustainable Development Goals: Environmentally sustainable practices at an eye hospital in Cambodia

Manfred Mörchen¹, David Lewis², Te Serey Bonn³

¹CBM, Philippines; ²CBM, Australia; ³CARITAS Takeo Eye Hospital, Cambodia

PURPOSE

In recent years a small number of eye hospitals in low and middle income countries have commenced actions aimed at reducing their carbon and overall environmental footprint. These actions include models for making cataract surgery more environmentally friendly: For instance, the re-use of surgical consumables and multi-use of pharmaceuticals were suggested to contribute to an average of only 6kg carbon emission (CO₂eq) from one phacoemulsification cataract surgery in India, compared to 160kg in the UK.^{1,2} The purpose of this case study is to outline comparable actions taken at an eye hospital in rural Cambodia.

METHODS

A situational analysis was conducted through interviews and focus groups of key stakeholders in May, 2013, at Takeo Eye Hospital. A questionnaire had been developed based on the WWF (World Wildlife Fund) 'Green Office Initiative'³ and adapted to the context of a rural eye hospital, seeing a total of approximately 30,000 outpatients and performing 2,500 cataract surgeries annually.

RESULTS

- Results of the questionnaire and focus group revealed strong motivators for the hospital to implement a range of environmentally friendly practices. Together with the desire to be an environmentally responsible institution, motivators included unreliable and high cost electricity, and frequent cuts to water supply.
- Instead of relying on air-conditioning, the buildings were designed using a cross-ventilation system with natural airflow and shading of windows wherever possible (Figures 1, 2)
- The hospital installed a 3.5kW solar panel system, together with a 100,000 litre under and above ground rain water collection system (Figure 3), which is important because of the long dry season in Cambodia (Chart 1)
- Collaboration with GERES (Group for the Environment, Renewable Energy and Solidarity) led to the installation of energy efficient improved cook-stoves for patient use (Lao-Stove), resulting in savings of 20 to 30 % of wood or charcoal (Figure 4)
- SICS (small incision cataract surgery) is the method of choice for cataract surgery, instead of relying on phacoemulsification with its suggested higher carbon footprint (Table 1)
- Single-use instruments like crescent knives, keratomes etc. are re-sterilized for re-use, as much as possible



Figure 1



Figure 2



Figure 3



Figure 4

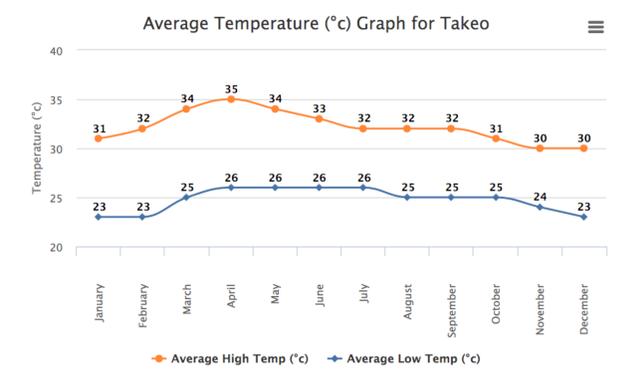
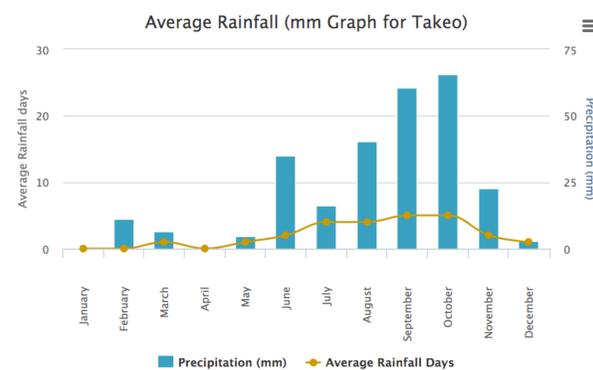


Chart 1 https://www.worldweatheronline.com/v2/weather-averages.aspx?locid=1330429&root_id=1316658&wc=local_weather&map=~/takeo-weather-averages/takeo/kh.aspx

	%				
	2012	2013	2014	2015	2016
Small-incision cataract surgery (SICS)	86.2	90.4	97.7	95.0	96.2
Phacoemulsification	0.0	7.8	2.0	4.8	2.8

Table 1: Cataract surgery methodology at Takeo Eye Hospital, 2012-2016

CONCLUSIONS

The environmentally friendly practices are proving to be a model for other hospitals, and have been widely shared through a CBM case study booklet.⁴ Staff engagement, linked with clear economic and practical benefits are important motivators. Baseline data allowing more specific estimations of electricity and other savings, and calculation of the resulting carbon footprint reduction, could provide additional learning. This is especially important for a country like Cambodia with high electricity costs and limited availability of sustainable energy sources.⁵ Based on the evidence of other studies cited, the implemented practices would also act to reduce the significant carbon footprint of both locally produced and imported consumables and pharmaceuticals.

បន្ទីរពេទ្យភ្នែក តាកែវ
TAKEO EYE HOSPITAL
គំរើញ្ញូរបស់យុគ ជាមេសកម្មរបស់យើង
Your Vision, Our Mission.

cbm
together we can do more

DISCOVERY INNOVATION & PRACTICE
32ND ASIA-PACIFIC ACADEMY OF
OPHTHALMOLOGY CONGRESS
SINGAPORE 1-5 MARCH 2017

REFERENCES

- Thiel C, Schehlein E, Ravilla Th et al. Carbon Footprint of Cataract Care: Addressing Sustainable Development Goals 12 and 13. Poster session presented at: Stronger Together. 10th General Assembly of the International Agency for the Prevention of Blindness; 2016 Oct 27-30; Durban, South Africa
- Morris DS, Wright T, Somner JEA. The carbon footprint of cataract surgery. Eye 2013;27:495-501. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3626018/pdf/eye20139a.pdf>
- WWF's 'Green Office Initiative', including its Consumer Habit Questionnaire. Available at: <https://wwf.fi/en/green-office>
- http://www.cbm.org/article/downloads/54741/Improving_Environmental_Sustainability_and_Accessibility_in_Eye_Health.pdf
- Derbyshire W. Cambodia – In depth study of electricity costs and supply. Government-Private Sector Forum, March 2015. Available at: <http://www.seac-cambodia.org/wp-content/uploads/2016/06/Cambodia-in-depth-study-on-electricity-cost-and-supplies-Final-Report.pdf>

CONTACT AUTHORS

- Manfred Mörchen, CBM
manfred.moerchen@cbm.org
- David Lewis, CBM
dlewis@cbm.org.au
- Te Serey Bonn,
CARITAS Takeo Eye Hospital
teh@caritascambodia.org

