

## CENTRE HOSPITALIER UNIVERSITAIRE MOHAMMED VI, MARRAKESH

### ABOUT

The Centre Hospitalier Universitaire (CHU) Mohammed VI of Marrakesh is a public institution including five hospital buildings, with a joint patient capacity of 1,548 beds. Currently, it employs around 2,500 health professionals who provide care to 4.5 million citizens each year. In 2016, the hospital conducted 200,000 outpatient consultations, had 172,000 emergency visits, and admitted 48,000 patients for day-care treatment.

### Centre Hospitalier Universitaire Mohammed VI Marrakech

### MITIGATION

In 2014, CHU Mohammed VI began integrating sustainability into its policies, and in 2016, a Sustainable Development Committee was created. The Committee seeks to adopt an integrated, participatory, and responsible approach to sustainability, and to promote a culture of innovation throughout the hospital's policies. In 2014, CHU Mohammed VI was awarded by the Quebec Council of Accreditation with the "Milieu Novateur" certification ("Innovative Environment"), which recognises the cultural shift.

The Sustainable Development policy sets social, environmental, and economic objectives, which include:

- reducing greenhouse gas emissions and improving the energy efficiency of buildings;
- promoting products and processes that are more respectful of the environment;
- promoting source reduction, reuse, sorting, recycling, recovery, and safe disposal of waste;
- supporting the implementation of renewable energy projects;

- applying a responsible purchasing policy that aims to make suppliers aware of Corporate Social Responsibility;
- continuing to improve awareness and communications aimed at reducing consumption and improving energy efficiency;
- developing a sustainable economic development strategy; and
- ensuring the integration of ecodesign principles in new investment projects.

Training programmes are an integral part of the strategy, and the hospital works to raise awareness by developing videos and other communication materials such as flyers and posters, which educate the staff and patients about sustainability.

### Energy efficiency & renewable energy

In total, the hospital consumes 9,813 MWh of energy each year. Emissions from energy use in the hospital buildings total 29,478 tonnes CO<sub>2</sub>e. CHU Marrakesh has committed to reducing its carbon footprint from energy consumption by 2% each year, compared to 2015 emissions. This will be achieved through the implementation of an energy efficiency policy that will provide staff training and capacity building, reduce energy and water consumption, and improve indoor and outdoor lighting systems.

CHU Mohammed VI has been investing efforts into reducing its reliance on fossil fuels, by increasing its use of renewable sources of energy. This has been a challenging task, as it requires the involvement of several authorities for financial and technical assistance. However, considerable progress has been made.

Renewable energy alternatives have been fitted to hospital buildings. More than 70% of all buildings are equipped with solar collectors that provide solar energy to power the buildings. Renewable sources currently generate about 80 kWp, with a goal to install sources that will provide 200 kWp more by the end of 2016. This project is costing approximately 4 million Dirhams (€372,900). CHU Mohammed VI seeks to expand renewable energy targets through increased investment and more clean technology.

The hospital has taken careful consideration of Marrakesh's environment during the construction of the solar plant located on the rooftop of the hospital. As strong winds were a threat to the new installation, the panels were built on a solid metal foundation, constructed to avoid damage. High temperatures have also posed some challenges; during summer months temperatures can reach 50°C, which resulted in wires being corroded (see image below). Such challenges have meant finding new ways to adapt the transition to sustainable development while meeting the demands of the local environment.

The hospital has also invested in outdoor solar



*Solar panel plant on the rooftop of the hospital building*

lighting for its parking facilities. This has been done by installing a solar photovoltaic system, which provides 90% of the energy for the outdoor lighting. Solar photovoltaic systems also provide energy for pumping and irrigation processes.

### Water conservation

To reduce water consumption, new water-efficient low-flow plumbing fixtures have been installed. While the older toilets used between 20 to 25 litres of water each flush, this new system uses only six litres per flush.

### Procurement

Through changes in the procurement of medical devices, technical installations, construction materials and supplies, CHU Mohammed VI has reduced its carbon emissions by 15%.

The hospital is working towards ensuring that only what will be used is purchased, particularly for products that increase the carbon footprint. One initiative that has resulted in great reductions in resource use is the implementation of the Hospital Information System, which keeps track of the resource consumption of the hospital. This online tool has been developed internally to track energy



*Wires on the solar panel plant corroded due to extreme heat*

consumption, costs, products, and GHG emissions. Its objective is to track progress, resulting in more sustainable management of all hospital activities. The hospital is also transitioning to paperless offices.

Although there have been some notable improvements in the hospitals' purchasing practices, a major challenge remains around the need to improve the Moroccan legislative framework regarding public procurement. For example, currently the state does not allow purchasing of local products, which limits the potential for the development of a sustainable procurement market in Morocco.

### Waste management

CHU Mohammed VI produces approximately 260 tonnes of waste each year. It has adopted procurement policies that promote source reduction, recycling, and the recovery of paper and wood products. Treatment of potentially infectious or hazardous medical waste is conducted on-site for all hospitals, using a new treatment system based on microwave technology.

### LEADERSHIP

The hospital has undertaken various initiatives as part of its efforts to raise awareness about climate change. It has organised training, seminars, and conferences on various topics including environmental management, energy management, energy efficiency, and waste management.

On the 30<sup>th</sup> and 31<sup>st</sup> of October 2014, CHU Mohammed VI held its first annual symposium on sustainable development in the health sector. Sponsored by the Moroccan Ministry of Health and Ministry of the Environment, the event brought together 120 participants from the hospital and scientific community to discuss environmentally responsible healthcare in Morocco and abroad. The hospital is also the first Moroccan member of the international Global Green and Healthy Hospitals network.<sup>41</sup>

In December 2015, CHU Mohammed VI participated in the Conference on Climate Change and Healthcare at the European Hospital Georges Pompidou in Paris, held in parallel with the Paris UN climate change meeting (COP21). CHU then went on to host the Climate and Health Care Conference in parallel to COP22 in Marrakesh in 2016. The event brought together health sector leaders from Morocco, Europe, and beyond to share strategies for the health sector to mitigate its own climate impacts, develop low carbon models of care, and use their voice, both individually and collectively, to advocate for policies to address climate change and public health.



*Climate and Health Care Conference participants at CHU Mohammed VI, December 2016*