

## GREEN BUILDINGS MEAN HIGH PERFORMANCE, LOW EMISSIONS IN VIETNAM



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Over the past decade, Southeast Asia has enjoyed a period of rapid economic growth coupled with urbanization and industrialization. These events have driven a steep increase in energy demand, 30 percent of which is based on the building sector. On par with its neighbors, Vietnam energy use has significantly accelerated over the past decade and 20 percent of the national energy consumption is a direct product of Vietnam’s building sector.

USAID’s Vietnam Clean Energy-Energy Efficiency Program (VCEP) has partnered with the Government of Vietnam (GVN) to update Vietnam’s Green Building Code and to promote high performance, energy efficient buildings throughout Vietnam’s major cities. VCEP defines high-performance buildings as 30-50% more efficient than current building standards.

This process began in 2012 when the GVN, with support from USAID and Pacific Northwest National Laboratory (PNNL), lent technical assistance to the Ministry of Construction in order to update Vietnam’s outdated building codes.

Dr. Nguyen, president of Vietnam’s Association of Civil Engineering and Environment (ACEE) stated, “PNNL provided a technical report to update the code. This was incredibly valuable; it was the most comprehensive technical contribution we received. We took their comments into the code revision and adapted them to Vietnam’s conditions.”

A mandatory updated building code is the lynch pin of Vietnam’s next phase of efficiency, but experts hope it is only the first step in the process. While donors including the World Bank’s International Finance Corporation as well as the Danish government are leading the charge to promote training on the new building code, the VCEP team and experts from the Vietnam Green Building Council (VGBC) are taking steps to move beyond the building code and to promote high performance, energy efficient buildings throughout Vietnam.

Preliminary research projects that a combination of building code compliance and high performance buildings in Vietnam’s



From left to right: Professor Tran Ngoc Chan, Professor Pham Duc Nguyen (ACEE), Dr. To Thi Loi

major cities could reduce GHG emissions in Vietnam by approximately 19 million tonnes by 2040.

The first step is to create an inventory of building stock, which measures the energy performance of large buildings (those greater than 2,500 m<sup>2</sup>) in Vietnam’s five major cities: Hanoi, Hai Phong, Da Nang, Ho Chi Minh, and Can Tho. These cities represent three typical climate zones and territories of the country’s north, south, and central regions.

“You can’t save what you can’t measure,” said Joseph Deringer, Senior Advisor of VCEP’s implementing partner Winrock International. “The building stock assessment tells us exactly how much energy is being used by the building sector, which is the basis for projecting impacts. This information is vital for successful implementation of Vietnam’s Green Growth Strategy.” He added, “Last year, we didn’t even know how many large buildings existed in Vietnam, now we know there are over 5,000 [buildings] with 120 new buildings coming online every year.”

This is a significant achievement for VCEP and EC-LEDS. To date, such a database has never existed in Vietnam making it virtually impossible for policy makers to identify energy efficiency opportunities in the building sector. But with the new building code and the success of the Building Stock



database, key building trends can now be pinpointed in Vietnam's major cities allowing experts to project GHG emissions and potential energy savings with much greater reliability.

VCEP also works to demonstrate the potential of high performance, energy efficient buildings, using model buildings to showcase proven energy savings and efficiency. For example, VCEP proved that if Hanoi's Energy Training Center implemented efficiency standards similar to those of U.S. LEED certifications (Leadership in Energy and Environmental Design), it would be 50 percent more efficient compared to its original design. This includes a projected reduction of 180 MWH per year.

Finally, ensuring local expertise and capacity to implement these new design and construction requirements is key to successful uptake of the new codes. The code now entails a comprehensive suite of technical standards to be applied in the design and construction or retrofit of civil engineering buildings (offices, hotels, hospitals, retails, services, and residential) with a gross floor area of 2,500 m<sup>2</sup> or larger. To that end, VCEP has a highly successful training component. BY September 2015, over 1,700 people received training from VCEP on various topics relating to clean energy promotion and building efficiency.

Dr. Pham Loan, Deputy Director of Vietnam's Institute of Architecture stated, "Vietnam faces real challenges to keep up with new technologies in engineering and architecture. But with USAID's help students are being exposed to green building training at the university level. That is new and education is key. We are now moving forward and gaining necessary expertise and we hope that progress will continue."