



Air Quality on three floors over the course of the day showing over 95% filtration of pollutants

RAISE FOR BETTER AIR QUALITY, SAFETY & EFFICIENCY

CONCEPT TO COMMERCIALIZATION

As the world prepares for COVID-19 recovery, public health in buildings has become a global priority. Healthy and energy efficient buildings are paramount for green recovery from the economic impact of COVID-19 while also addressing concerns of poor air quality in the country.

As a consequence in June 2020, USAID and EESL collaborated as a part of the [USAID Market Integration and Transformation for Energy Efficiency \(MAITREE\)](#) to design [RAISE \(Retrofit of Air-conditioning to improve Indoor Air Quality for Safety and Efficiency\) program](#). Under the U.S.-India Strategic Energy Partnership dialogue, the Minister of Power, Government of India, launched RAISE to advance the strategic and economic interests of the two countries.

Pilots retrofitted under the RAISE program have shown a marked improvement in indoor air quality with an over 95 percent reduction in pollutant concentration compared to outside levels. In buildings where the RAISE program has been implemented, the air quality index often registers within the “healthy” range giving occupants confidence about building safety, even when outside monitors read “hazardous”.

The budget for the RAISE program’s first phase is approximately \$12 million. This sum is expected to increase as the program expands across India, opening a large market while fulfilling a critical need for clean air and reduced energy consumption.

THE PROBLEM STATEMENT

Rapid growth and the subsequent rise in pollution levels have resulted in an increasing prevalence of respiratory diseases and a corresponding awareness about the importance of indoor air quality. The narrative preceding the pandemic considered energy efficiency and air quality at two opposite ends and required one to be compromised for the other, with air quality often taking a backseat. Most existing

buildings in the country, therefore, are not equipped to maintain a healthy indoor air quality and need to be upgraded, especially the buildings that use central air-conditioning.

Public buildings, like hospitals, hotels, airports, and metros experience a high foot traffic and are thus required to meet high air quality standards, making retrofits a priority when India reopens for business. Unfortunately, measures such as increasing outside air-flow and incorporating additional filtration to air-conditioning systems typically increase energy use.

OPPORTUNITY FOR AN INTEGRATED APPROACH

Since 2016, USAID MAITREE has been assisting EESL with technical expertise to help EESL expand their buildings and cooling portfolio as an energy service contract. EESL also finances energy efficiency upgrades, and the customer pays over a fixed period from the energy cost savings achieved.

As COVID-19 unfolded, leading international organizations and industry associations such as [ASHRAE](#), [ISHRAE](#), [CIBSE](#), and [RHEVA](#) offered guidance to reducing the pandemic's spread through guidelines on retrofitting air conditioning and ventilation systems. Implementing changes based off these guidelines involve significant cost and effort.

The MAITREE team saw an opportunity to reduce the risk of air-borne infections in existing buildings. They expanded the EESL scope to combine air quality retrofits with energy efficiency upgrades, which resulted in energy cost savings to clients, offsetting some of the retrofits' expense. The graphic below demonstrates the RAISE approach. The team evaluated technologies and resources in the market to determine the RAISE program's business feasibility.

"EESL program is addressing the challenges of retrofitting existing buildings and air conditioning systems so that they are both healthy and energy efficient. We hope that this pilot will pave the way for other buildings take appropriate steps to be healthy and energy efficient. As always, our work is for the public and for the benefit of everyone, and our partnership with USAID will help scale it up"

Mr. Saurabh Kumar, CMD, EESL
June 5, 2020

USAID is proud of its partnership with EESL under the MAITREE program. It is inspiring to see that EESL has taken the leadership, by being the first to implement the idea in its own offices. I have no doubt that this pioneering effort coming out of the partnership will address the air quality and energy use concerns in building - directly improving comfort, health, productivity, and ultimately the quality of life of the citizens."

Ms. Ramona, USAID Acting MD
June 5, 2020

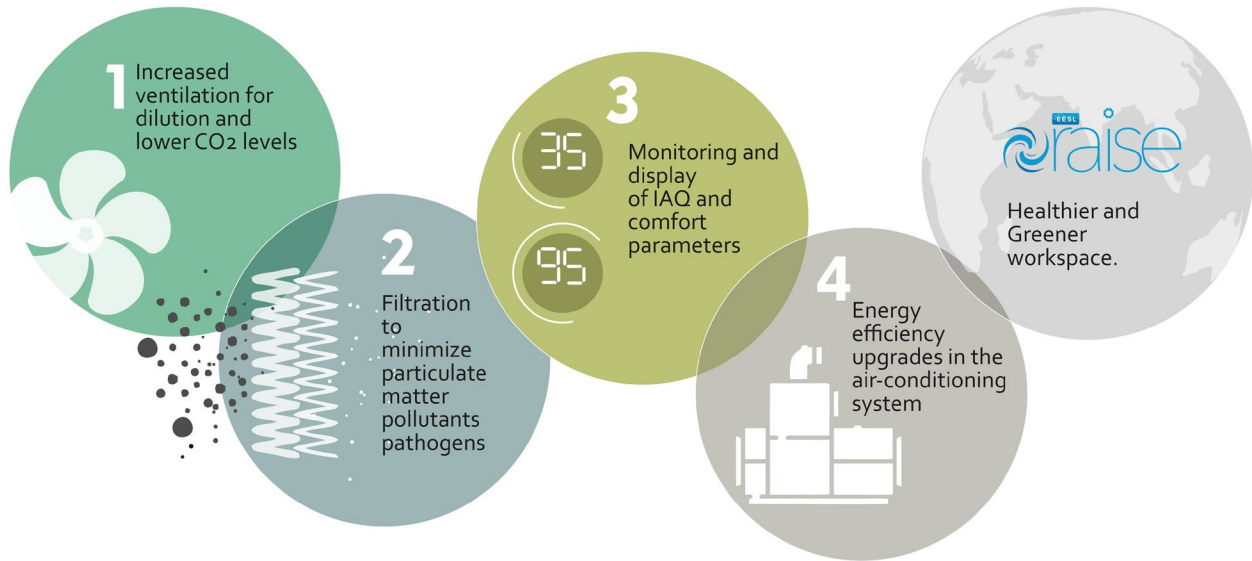


Figure 1 : Integrated approach for healthy & energy efficient buildings

FROM PILOTS TO SCALING THE INITIATIVE

EESL took the leadership by being the first to implement the idea in its own offices in May 2020. Additional pilots were carried out at the Shram Shakti Bhawan (Office of Ministry of Power) and Office of Ministry of Home Affairs. The pilots helped to:

- Evaluate the effectiveness and cost benefits of various technologies and their short term and long-term impacts on air quality, comfort, and energy use.
- Fine-tune the technical specifications and implementation strategies for scale-up.

According to a recent [market research report](#), “Asia Pacific air quality control systems market will grow by 7.0 percent annually with a total addressable market cap of \$251.3 billion over 2020-2030 driven by the rising demand for air purification amid the COVID-19 pandemic.” The RAISE model is replicable in the South Asia and Southeast Asia region, which has a similar building stock, and where energy use in air-conditioning and poor indoor air quality are grave concerns.

The RAISE team is currently engaging with public sector offices and hospitals for large-scale rollouts. Over the next few years, as more and more buildings are enrolled in the program, we can expect a market transformation towards a healthy, energy efficient, and resilient built environment.

The RAISE brochure can be downloaded [here](#). This blog was written by Tanmay Tathagat, Program Director, [USAID MAITREE](#). [Environmental Design Solutions](#) is the implementing partner of the MAITREE program. To learn more about the program and the RAISE initiative write to us at: maitree@edsglobal.com or follow us on [LinkedIn](#) and [Twitter](#).