

# Case Study

## Prem's uncompromised dedication to Clean Air. Inside and Outside the Classrooms

Northern Thailand has periodic air pollution that has a significant impact on our health and wellbeing. Managing the air quality inside classrooms is a challenge - especially if your school is in a region of elevated air pollution.

Younger children and students are particularly vulnerable to air pollution related illnesses like asthma.

Prem Tinsulanonda International School (Prem) decided to actively engage with this problem by setting the target that its air quality meets the strictest international standards and by working with the community for positive change on the wider picture.

The first step for Prem was looking inwards on how to improve learning spaces to maintain safe quality of air - even on the worst days of the smokey season, and to start with defining "safe air".

### WHO Air Quality Targets

Research led to the recognition that the World Health Organization Air Quality Guideline (that sets PM<sub>2.5</sub> annual exposure to be less than 10 µg/m<sup>3</sup>) is the definitive and strictest global standard. Furthermore, WHO and ongoing research indicates that PM<sub>2.5</sub> should be as close to Zero as possible, especially considering the impacts on childhood development.

As a result Prem set itself the very ambitious target to consistently beat the WHO Air Quality Guideline - even during the peak smoke season.

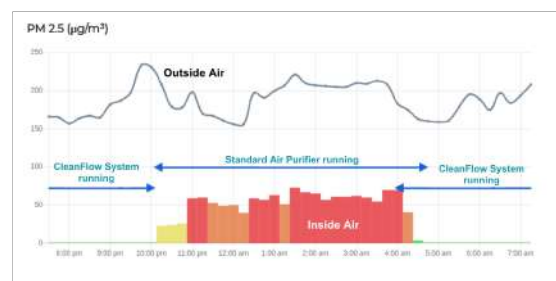
The next step was to get a solid foundation of data and Prem decided to employ a powerful air quality monitoring and communication solution from [AirGradient](#). The system measures air quality in more than 60 spaces (classrooms, common areas, sport facilities) to provide a crystal-clear view on ongoing real-time conditions.

Immediately, it became apparent that during the smoke season even the best air purifiers were not able to bring classrooms to meet the WHO Air Quality Targets and that a fundamentally different technology was needed. Prem started working with CleanFlow Thailand, a specialist for positive pressure systems in

schools to implement a solution to consistently keep indoor PM<sub>2.5</sub> at less than 10 µg/m<sup>3</sup>.

### Positive Pressure Fresh Air System

The [CleanFlow](#) system takes outside air, filters it through high performance filters and pushes it into the classrooms. The slightly increased pressure inside the classrooms prevents dirty air from entering and also flushes out CO<sub>2</sub> thereby creating a safe and healthy learning environment.



Above graph shows the superior performance of the CleanFlow system compared to traditional air purifiers. With air purifiers your indoor air quality will only reduce the outdoor pollution to a certain extent whereas the CleanFlow system consistently maintains close to zero PM<sub>2.5</sub>.

This solution was trialed in four classrooms in 2019/2020 and was able to keep the air quality inside the classroom at near Zero AQI even on the worst polluted days. As a result Prem installed 60 CleanFlow systems in all its homerooms, sport facilities and many common areas.

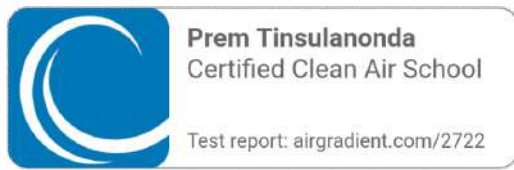
*"We are extremely pleased to be able to maintain the air quality of our classrooms within the strict WHO recommendations -even on highly polluted days."*

Rachel Keys, Head of School

### Clean Air Certification

With the new campus-wide system in place and sensors in each location, Prem has been able to keep PM<sub>2.5</sub> levels consistently well within the WHO recommendations. Prem was recently assessed by

AirGradient and awarded the “Certified Clean Air School” certification.



## Community Outreach

Creating the best indoor air quality for its students is not where Prem stops. Recognizing climate change as a global problem as well as its responsibility for the community in Chiang Mai and Northern Thailand, Prem is also deeply committed in helping to improve the smoke situation long term. There are several projects with the aim to create awareness and potential solutions that Prem initiated.



In 2020 Prem hosted a two-day camp and invited local high schools on its campus to discuss the effects of the burning and potential solutions. Part of the camp was also a workshop with fire fighters to better understand their work. The same year, Prem dedicated its STEAM week to the air quality issues with student teams working on building air quality sensors and simple purifiers.

## Prem’s Network on Clean Air

In 2021 Prem started a project with [NARIT](#) (National Astronomical Research Institute of Thailand) to work with their research team in collaboration with Prem students to measure PM2.5 on different altitudes with sensors mounted on weather balloons. The data from this research project could potentially lead to a better air quality in the region.

Prem also initiated a network among international schools in Chiang Mai to work together on student projects to raise awareness on air pollution and climate change and exchange ideas between the schools.

## Impacts

Besides the significant health impact on its students and staff, Prem saw also significant benefits in other areas.

**Retention of Students:** Prem’s parent community is extremely happy about the significant improvement of the air quality on campus and this should reduce the number of families leaving the school due to air quality issues.

**Increased Applications:** A targeted Clean Air campaign on social media and print lead to a significant increase in applications for new students.

*“After we started the Prem Clean Air campaign, our weekly applications increased exponentially!”*

Liz Hammond, Director of Development

**Reputation:** Prem’s work within this area has been recognized by the Chiang Mai community and strengthened the reputation of Prem as a school.



## Continuous Improvement

For Prem, managing air quality is not a one-time event or investment but an ongoing commitment towards keeping its students safe as well as contributing to improvements in the wider community.

More Information: <https://ptis.ac.th/aqi-at-prem/>

## Further Information

Contact us for a meeting to discuss how we can help your school.

<https://www.airgradient.com/schools/support@airgradient.com>