

An Assessment on the Ministry of Education’s Air Pollution Prevention and Control : Strategies Proven to be Effective, School Children’s Health are Being Safeguarded

(Courtesy of Qiu-Chan Qiu at the Division of Student Affairs and Campus Security)



To envision effective and economically viable indoor and outdoor air pollution prevention and control strategies, the Ministry of Education has commissioned a team from the National Cheng Kung University to undertake a one-and-a-half-year project of "Planning, Implementation, and Evaluation of Effectiveness of School Air Pollution Prevention and Control Strategies" in May 2018. In particular, the “fresh air ventilation system” can effectively restore 100 percent of the indoor carbon dioxide to its standard value; the average rate of PM2.5 pollution in the classrooms with the system installed also improved as much as 70 percent. From October 2019, in response to the incoming season of severe air pollution (the autumn and winter seasons from October to March), a post assessment on the indoor air quality at school will be performed on a trial basis, and a complete report on the effectiveness of the implementation of the air pollution prevention and control measures will be put forward in early

2020 to persuade the Executive Yuan and the Environmental Protection Administration to implement the measures on a larger scale.

To understand the effectiveness of this pilot project, Sun-Lu Fan, Political Deputy Minister of Education and Fu-Yuan Peng, Director-General of K-12 Education Administration of the Ministry of Education, led a team to the Yunlin County Yang Ming Elementary School on the morning of September 16, 2019 to observe the effectiveness of the school air pollution prevention and control strategies. They were joined by Zhi-Peng Zhou, deputy director of the Legislator Jian-Guo Liu's office, and Ru-Ping Zhou, representative of Lunbei Township, joining this visit.

Ms. Fan said that based on the data, this pilot project has proven to be effective and was very helpful as an important reference for further implementation in schools across the country. She highlighted the fact that only the air quality of the eastern cities and counties in Taiwan met the environmental air quality standards, while the remaining cities and counties belong to the level 3 air quality control area and that children, in particular, were very sensitive to air pollution, so it was imperative to maintain a good air quality at school. At present, through the Zhuoshui River Blowing Dust Control Platform meetings in the Executive Yuan, which were jointly proposed by legislator Jian-Guo Liu to set up, a subsidy of NT\$11.5 million has been approved. In August 2019, 230 sets of the fresh air ventilation system have been installed in 22 schools. In the townships of Erlun, Lunbei, and Mailiao. The Ministry of Education would continue to seek funding proactively from the Environmental Protection Administration to subsidize the junior high and elementary schools and kindergartens in the townships of Xiluo and Citong to install the system.

The air quality is often poor in the central and southern cities and counties of the west coast of Taiwan. In particular, as Yunlin County is located on the bank of the Zhuoshui River, the north winds in the autumn and winter seasons often cause dust to blow in the air, which further deteriorate the air quality. This April, Premier Tseng-Chang Su went southward to visit the Zhuoshui River in Yunlin to see how the blowing dust was prevented and controlled. Ms. Fan also joined Premier Su's visit of Southern Taiwan to gain a better understanding of the situation and stressed that she would join the fight against PM10 air pollution caused by the blowing air around the Zhuoshui River, to safeguard local teachers' and students' health, while

strengthening the collaboration with local governments to maintain the air quality at school, in order to defend local school children's health.

The National Cheng Kung University was commissioned by the Ministry of Education in 2018 to implement the project entitled "Planning, Implementation, and Evaluation of Effectiveness of School Air Pollution Prevention and Control Strategies," running from May 1, 2018 through January 31, 2020. Using the Environmental Protection Administration's data from the air quality monitoring stations as criterion, four elementary schools and kindergartens in Kaohsiung City and Yunlin County, respectively, were selected as demonstration sites. In addition, schools and local governments were invited to participate in the projects, including "Pilot Project and Effectiveness Evaluation" and "Preparation of Kindergartens for Inclusion in Indoor Air Quality Management Sites," so as to filter out effective and economically viable indoor and outdoor air pollution prevention and control strategies, as references when expanding to campuses across the country.

This project subsidizes the demonstration schools for the installation of the fresh air ventilation system, vertical hedge plants, watering and sprinkler systems, notice sign indicating the air quality maintenance area, as well as explanatory leaflets printed for parents. A subsidy of NT\$1.085 million has been approved to be allocated to the four schools in Yunlin and NT\$2.86 millions to the four schools in Kaohsiung.

According to the Ministry of Education, a preliminary assessment on the effectiveness of this project was conducted at the demonstration schools in Yunlin County. In October, 2018 at the Yunlin County Yang Ming Elementary School, through the monitoring of the classrooms that have been equipped with the fresh air ventilation system and comparing with the ones without the system installed, it has been discovered that, simply with the windows closed, particulate matter and carbon dioxide might accumulate inside the rooms, while the fresh air ventilation system could effectively restore 100 percent of the indoor carbon dioxide to return to its standard value, and the average rate of PM2.5 pollution in the classrooms with the system installed also as improved by as much as 70 percent. In addition, considering the timeline for the establishment of various air pollution strategies, and to effectively respond to the peak season of air pollution (the autumn and winter seasons from October to March), it is expected

that a post assessment on the indoor air quality will be performed at school on a trial basis this October, to evaluate the effectiveness of the air pollution prevention and control measures.

The Ministry of Education said that the school air pollution prevention and control strategies belong to the categories of both indoor and outdoor air pollution. Relevant strategies for outdoor air pollution prevention and control were more difficult to manage due to the overall external environment and the influence of livelihood economy. The environmental factors of indoor air pollution control could be identified in a straightforward manner, and schools could manage their sites independently. Therefore, the Ministry of Education cooperated with schools to implement the air pollution prevention and control measures in the indoor environment of schools in the hope that school children could be protected from the harm of air pollution immediately. The Ministry of Education will continue to follow up on the outcomes of this evaluation of the project and formulate effective air pollution prevention measures which could subsequently be implemented in schools, in the cities and counties across the country.