

Air Exposures: Making Children Aware. Two Norwegian Campaigns

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Children have been identified as a susceptible group for exposure to harmful pollutants. It is reasonable to work with this population group in order to make them aware of hazards related to environmental pollutants. The Research Council of Norway has launched an annual research campaign as part of "The National Science Week" (www.forskningsdagene.no). Schools are invited to participate as a part of their project work. A dedicated Internet portal is made available for registration, methods description and guidance, and to order the necessary materials. The research campaigns are hosted by an Internet based school network for sustainable development (www.miljolare.no) established by the Directorate for Primary and Secondary Education.

Of the around 4000 primary and secondary schools in Norway, 14% registered their data in 2003 and 3% in 2004.

Research campaigns:

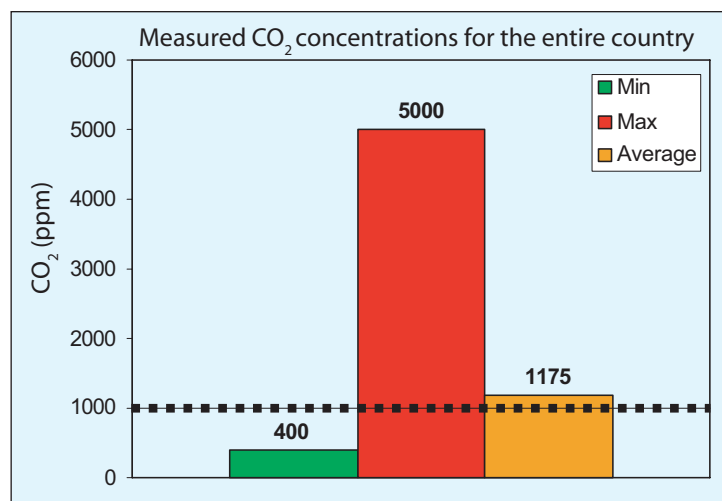
The 2003 campaign was dedicated to school indoor climate. The aim was to raise awareness about the importance of a good indoor environ-



The picture above shows a pupil setting up the sampling equipment for measuring particulate pollution along the school route.



The picture to the left shows a pupil doing CO₂ measurements in the classroom.

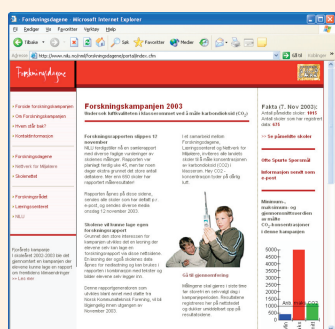


Internet based school network for sustainable development (www.miljolare.no)

The network includes activities complete with guidelines for how the pupils can investigate, discuss and communicate their work.

When the results are submitted to the network, they are made available for others to view.

The concept of using the collected data for a scientific evaluation of the school's local environment has proved a motivation beyond the pure learning aspects. Low threshold campaigns can also serve as an introduction to more in-depth involvement in projects



related to natural sciences and sustainable development.

ment, and to provide data on CO₂ in relation to the indoor environment norm set by the NIPH, of 1800 mg/m³ maximum.

A classroom kit containing a syringe (pump), two absorption tubes (Teknolab) was sent out to individual participating classes. Several other parameters of indoor environment were registered on-line, and the children were asked about their subjective evaluation of the indoor environment. 58% of all classrooms had CO₂ levels below or similar to the norm, 35% had problematic and 7% unacceptable indoor levels.

The main factor affecting the CO₂ levels was presence/absence of functioning ventilation. Reports also showed an agreement between subjective evaluation of indoor air quality and measurement results.

The 2004 campaign was dedicated to particulate pollution along the pupil's school route. Using Petri

dishes with a filter paper, children were asked to collect dust at the kerb site along the frequented access routes to schools during 8 hours (8-16) for three days with dry weather. The dust levels were then visually evaluated using a scale supplied with the dish. The children also performed traffic counts. 87 schools registered their data, a much lower participation than the year before partly attributable to the wet autumn in 2004 (within the allocated time period, it was not always possible to find three "dry" days). In all, data were available for 157 road links, of which 26% had "high" or "very high" particle pollution levels. These for the most correspond to road links with heavier traffic load and higher speed. Despite the modest participation, the method showed good agreement with traffic emission of particulate matter, and could be used for a more extended screening.

Conclusion

The campaigns are based on distributed information collection and primary screening methodologies. They raise awareness and can supplement environmental screening methods used in scientific studies. The growing interest of schools in the activities organized by the "The National Science Week" indicates that these efforts are a success.