Air pollution in capital at harmful levels

‘Beirut Air Quality Index’ program to enter third stage, widen scope of data gathering

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The Daily Star

BEIRUT: Dangerous air particles, breathed in daily by Beirut residents, are up to 200 percent higher than World Health Organization guidelines, findings released Monday have shown.

Conducted by research teams at the American University of Beirut and Saint Joseph University, the study, ‘Beirut Air Quality Index,’ presents data gathered from across the capital during a two-year period.

It concludes that the concentration of Particulate Matter (PM), consisting of tiny molecules, is both high and prevalent throughout the city, affecting a significant majority of the population.

“Breathing in particles like this is like breathing in a bag full of different compounds,” said AUB professor and study author Najat Saliba.

Saliba presented the results for two types of particle size, one measuring less than 10PM micrometers and the other smaller than 2.5PM. Both have been linked with higher instances of respiratory disorders such as asthma and lung cancer. They are also known to cause cardiovascular problems.

PM10 was found to be in highest abundance, at four times the level recommended by the WHO. Its pervasiveness also increased by 36 percent from 2009 to 2010 in certain areas, presumably because of the low rainfall seen last year, said Saliba.

PM2.5 levels were deemed to vary less from year-to-year, but were still double WHO standards, she said.

The program, carried out in coordination with Beirut Municipality and National Center for Scientific Research, will now enter the third stage, which will widen the scope of mobile monitoring stations across the city, used to obtain greater accuracy. A gradual extension to other Lebanese municipalities is also planned, with eight adjacent Beirut districts expected to be the first to be included.

“The intention is to slowly build up to full national coverage which will illustrate to all Lebanese the health dangers of living in a certain area,” said Saliba. A website, for user-friendly information dissemination, is also planned, she added.

As the study factors in a range of complicated factors, such as topology, traffic and population density, extending the scope of the study “will be extremely difficult” but faster than expected progress to date has been an encouraging start, Saliba added.

Some 93 percent of the city’s population is constantly exposed to hazardous levels of general air pollutants, while 96 percent of Beirut residents have a 50 percent chance of exposure, said USJ professor and one of the study’s authors, Joseline Gerard.

The city average was found to be 53 micrograms per cubic meter in 2009 and 58 in 2010, in contrast to the 40 deemed the maximum safe levels for human health. The measurement is an expression of the prevalence of chemical vapors, fumes or dust found in the air.

Pollution density is worst in central Beirut, Acharafiyeh and around the Beirut Port, while Raw Beirut is the least affected, the study found.

However, the problem is compounded by population distribution with the majority of people living in heavily polluted areas which accounts for the catastrophic exposure rate, explained Gerard.

The heavy concentration of population, industry and transportation routes along the Lebanese coast is also thought to be a major contributor.

However, while traffic and other man-made pollutants, emanating from devices such as air conditioners, are certainly adding to the pollution and smog, Beirut’s geographic position is also largely to blame for the troubles, project researchers said.

Sandwiched between the southeastern Mediterranean and an unusually high mountain range, rarely seen with in such close distance of sea, Beirut is geologically doomed to accumulate large amounts of air pollution.

With two seasonal sand storms blowing over the city, one emanating from the Saharan Desert and the other from the Arabian Peninsula, Lebanon receives a large amount of natural dust. Beirut is further disadvantaged by three separate circular wind patterns that pass over the city, merely recycling the air instead of blowing pollution away.

“Surprisingly, our results show that air pollution levels were the lowest in summer and highest in the autumn,” said Gerard.

Factors like inconsistent wind speeds and low rainfall, which is thought to be decreasing as a result of global climate change, are all intensifying the problem, program researchers said.