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Current Threats to the Environmental Conditions in Cities of the Eastern Mediterranean

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The environmental conditions in urban settings are subject to processes and conditions within cities, on the one hand, and have a strong bearing on the overall conditions and the quality of life of the cities' inhabitants, on the other. The built environment, in general, and buildings and infrastructure, in particular, play a major role in shaping the urban environment. At the same time, environmental conditions affect strongly the conditions within and outside of buildings.

The continued growth of cities in the Eastern Mediterranean and Middle Eastern (EMME) region, the demise of environmental quality adds to the challenges faced by their inhabitants. Of the many factors contributing to these threats, climate change and its amplification in urban structures, the increasing load of pollutants in air and water and the rising numbers of dust storms as well as the growing amount of solid and liquid waste stand out.

The significant increase in the number of cars and the rising quantity of energy production has contributed to ever-worsening air quality in EMME cities. More specifically, urban road transport represents one of the major sources of air-borne pollutants in many of these cities and causes substantial threats to the health of their inhabitants.

The Middle East and North Africa (MENA) and the EMME region are major sources of desert dust storms that travel north and east to Europe and Asia, thereby strongly affecting cities and their air quality in the EMME. Dust storms and suspended bacteria and viruses pose serious consequences to communities in the EMME region and are likely to worsen due to ongoing climate change.

Present and future changes in climate conditions will have numerous adverse effects on the EMME region, in general, and on EMME cities, in particular. This includes extended heat waves as well as enhanced water scarcity for inhabitants and green spaces. In combination with poor air quality, this will cause severe health risks for urban populations as well as the need for increased and extended periods of space cooling in private, commercial and municipal buildings. The greater needs for water and energy in urban structures are interrelated and have been described by the Water-Energy Nexus. The higher demand for water is increasingly satisfied through desalination, which is particularly energy-intensive. The need for additional space cooling during hot spells in cities will require more electricity.

The high rate of population growth, ever-increasing urbanization, changes in lifestyles and

economic expansion in the EMME countries result in steadily increasing volumes of solid and liquid waste. The waste problems are exacerbated by the rising number of displaced persons and refugees in growing camps in some of the EMME countries, particularly, in Turkey, Jordan and Lebanon. The huge quantity of daily produced sewage sludge in Middle Eastern countries presents a serious challenge due to its high treatment costs and risks to the environment and human health.

This paper will address some of these challenges, which call for holistic and interdisciplinary efforts to design effective and sustainable adaptation strategies in EMME cities.