

Air Ventilation Assessment and Urban Climatic Mapping

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Finding ways to strategically plan a city environmentally requires climatic information. Hong Kong is a high density city with a sub-tropical climate and a hilly topography. In 2003, Hong Kong was hit by Severe Acute Respiratory Syndrome (SARS) from which many people died. The Hong Kong Government subsequently set up a Team Clean Committee to investigate possible infectious disease prevention measures and policies. Team Clean charged the task to the Planning Department of the Hong Kong Government. The Planning Department initiated a study titled: "Feasibility Study for Establishment of Air Ventilation Assessment (AVA) System". The study led to the methodology of Air Ventilation Assessment (AVA). Unlike many countries with guidelines for dealing with strong wind problems, the AVA is a set of guidelines for the weak wind conditions specifically designed to deal with the congested urban environment. The AVA establishes a method for project developers to objectively assess the impact of their designs to the urban wind environment. In July 2006, the Government of Hong Kong adopted the system, and since Dec 2006 has required all major governmental projects to undertake the AVA.

The government of Hong Kong has recently commissioned studies towards producing an urban climatic map (UCMap). The extraordinary urban morphology of Hong Kong and the complex wind environment makes the task a unique scientific challenge. Using planning and land use data, a GIS based UCMap has been created. This has been classified and coded. Land uses, ground coverage, building bulk, greenery intensities and so on have been incorporated. Overlaying it is the climatic data available from the Observatory. Based on the UCMap, the Planning Recommendation Map will be produced to guide planning decision makings. Some of the initial workings of the project "UCMap and Standards for Wind Environment" will be reported for discussion. The research study is commissioned by the Planning Department of Hong Kong. The study started in August 2006 and is planned to be completed in July 2009.