Development of Climate-Based Dengue Early Warning System in Jakarta, Indonesia

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Dengue is considered as one of the diseases that draw public-health concern due to its rapid epidemic spread and its potentially life-threatening. Dengue also bear heavy economic costs on health system and society, both directly and indirectly. The incidence of dengue in Indonesia has increased significantly during the past 45 years with the peak incidence shifting from young children to older age groups. The existing practice of warning for dengue outbreaks are based on reported cases, hence highly depends on endemicity of the disease. This kind of warning is more useful for immediate responses, but not for advance prevention.

Studies have shown significant correlation of temporal dengue cases with climate variations. There are many statistical models based on this relationship that have been constructed, emphasizing on the potential for developing climate-based early warning system. During 2017-2018, the Agency for Meteorology Climatology and Geophysics (BMKG) in close collaboration with the Regional Health Agency in Jakarta and Bandung Institute of Technology, has jointly developed climate services products for dengue early warning in Jakarta. The products consist of prediction of dengue cases and a climate suitability index up to three months lead time with considerably good skills. The development of this products truly reflects the spirit of the Global Framework for Climate Services (GFCS), in which it was developed through research activity involving academia and customized through systematic user interface meetings with the health sector, one of GFCS's priority areas. It is aimed that the products will assist the public health decision makers in reducing the number of dengue cases as well as in planning their prevention programs for dengue risk and hence reducing the overall economic burden associated with this disease.