

SCIENTIFIC PROTOCOLS TO ASSESS AIR POLLUTION IMPACTS TO CROP YIELD AND FOREST PRODUCTIVITY ACROSS THE ASIAN REGION**L.D. Emberson***Biology Department, Stockholm Environment Institute at University of York, York, USA*

Across many parts of Asia current ambient levels of air pollutants (including sulphur dioxide (SO₂), nitrogen oxides (NO_x), ozone (O₃) and suspended particulate matter (SPM)) have been found to cause reductions in agricultural crop yields and forest productivity (Emberson et al. (2001)). The projected increases in pollutant emissions for the Asian region mean the situation is likely to worsen considerably in the future with possible implications for food security and the maintenance of forest function. To date, observational and experimental data, describing plant responses to pollutant concentrations have not been collected in a standardised manner making it difficult to combine information and apply recognised risk assessment methods to assess the extent and magnitude of the air pollution problem across the entire Asian region. To address this short-coming, we here describe the development of appropriate protocols that have been developed by a network of air pollution scientists from countries across Asia specifically for application under Asian conditions. As such, they target key agricultural crop and forest species, growing under a range of climates and environmental stresses that would be expected to modify sensitivity to the major air pollutants. These protocols have been specifically designed to improve the scientific robustness of information that may be collected in the future and to provide information suitable for the assessment of air pollution risk (considering biological and well as socio-economic impacts to crop yields and forest productivity) for appropriate emission reduction policy formulation in Asia.