



Modelling of labour productivity loss due to climate change: HEAT-SHIELD

Tord Kjellstrom (1) and Hein Daanen (2,3,4)

(1) Health and Environment International Trust, Nelson, New Zealand (kjellstromt@yahoo.com), (2) TNO, Soesterberg, Netherlands (hein.daanen@tno.nl), (3) VU University, Amsterdam, Netherlands, (4) Amsterdam University of Applied Sciences, Amsterdam, Netherlands

Climate change will bring higher heat levels (temperature and humidity combined) to large parts of the world. When these levels reach above thresholds well defined by human physiology, the ability to maintain physical activity levels decrease and labour productivity is reduced. This impact is of particular importance in work situations in areas with long high intensity hot seasons, but also affects cooler areas during heat waves.

Our modelling of labour productivity loss includes climate model data of the Inter-Sectoral Impact Model Inter-comparison Project (ISI-MIP), calculations of heat stress indexes during different months, estimations of work capacity loss and its annual impacts in different parts of the world. Different climate models will be compared for the Representative Concentration Pathways (RCPs) and the outcomes of the 2015 Paris Climate Conference (COP21) agreements. The validation includes comparisons of modelling outputs with actual field studies using historical heat data. These modelling approaches are a first stage contribution to the European Commission funded HEAT-SHIELD project.