AU network on air pollution and health

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Excerpt from project description

Aarhus University holds a unique position within air pollution and health. AU (ENVS) has since the very start of the program in the 1980s been operating the Danish Air Quality Monitoring Program. This means direct access to, but also deep knowledge about all routine air quality measurements in Denmark. The measurements carried out within the monitoring program are supplemented with data from a suite of state-of-the-art air quality models developed at Aarhus University, covering all scales from the Northern Hemisphere to urban street canyons as wells as integrated model systems for health impacts and related external costs. Danish registers are unique in the world and provide the option of coupling exact health information to address and occupation data as well as to environmental data that are linked to these. A couple of large cohorts exists in Europe (the entire Dutch population, the population of Rome are known examples), but the Danish cohort is by far the one where the most extensive and well verified data is available. The CIRRAU (Center for Integrated Register-based Research Aarhus University) has established a unique platform for performing interdisciplinary research in health economics and social and life course epidemiology. The nationwide possibility to link exposures in point and time to persons and their health exists only in Denmark; it merits further usage and as suggested by this application bringing together researchers with extensive experience in these areas. Currently a project on health effects associated with atmospheric emissions from Danish agriculture is about to be concluded as a result of the cooperation within the CIRRAU consortium that is also involving the applicants of this network proposal. The experience obtained for this work is already so promising that the team see great perspectives in continued and extended collaboration regarding other pollutants, other pollution sources and other health outcomes.

SCOPE: The scope of the network on air pollution and health is to bring together scientists from very different scientific disciplines and harvest on and further improve the unique methodologies

and data that are available in this area, and just as important to position Aarhus University even further within this area as a world class player that naturally belongs to top consortia of applications for environment and heath calls under Horizon2020 and other international research programs.

AIMS: The aims of the network regard consolidating and extending world class research activities within air pollution, epidemiology, health and economic valuation of impacts, but also to perform talent training within this highly interdisciplinary field. The aims of "AU Air and Health" are:

- Establish new datasets for validation of exposure assessment: high-resolution air pollution data from models and measurements, personal exposure monitoring, time-activity data, study the importance of exposure to outdoor air pollution during commuting, work etc.
- Further improve methodologies for assessment of exposure to air pollution in the Danish population. The current methodologies are already word class, but there are still substantial potential for improving these even further utilizing the unique Danish air pollution data and registers. Improve model performance, extent temporal and spatial resolution etc.
- Facilitate the basis for initiating a series of interdisciplinary PhD and Post Doc studies making use of the unique interdisciplinary network covering atmospheric science, environmental health science, epidemiology and environmental economy.
- To produce a series of high impact papers in top peer reviewed journals; articles regarding the relationship between air pollution and various known as well as not previously identified health effects. Many of the studies will be using the entire Danish population as cohort, which in most cases means the largest study of its kind and based on the until now most detailed and well verified data.

As a result of following these aims, the goal is to substantially contribute to improving assessments of health impacts related to air pollution in Denmark as well as abroad as a basis for national and international policy development.