Janne Helin, PhD
Postdoc

Environmental Social Science Group

Tel (direct): +45 51786151
E-mail: jh@envs.au.dk

AARHUS
UNIVERSITY

Uden titel (phosphorus and food production)

Growth of world population will require food production and distribution to match the needs of an increasing number of people. This study focuses on the role of phosphorus, which is an essential (non-substitutable) nutrient for all primary food sources. Majority of world's phosphorus flows, both mined and recycled, end up in agriculture.

This study combines the latest revised population growth predictions of UN with FAO food balances, OECD long-run GDP predictions and country income elasticity data to estimate minimum phosphorus needs for food production in the 21st century. We predict countries' crop and animal production, which will play the key role in the future demand for phosphorus. We demonstrate a novel method for estimating the long run phosphorus demand, which is based on FAO data on food availability and phosphorus content of food products and circumvents some of the typical problems with fertilizer data. We show a fairly stable demand trajectory for phosphorus on the global level with a medium UN population variant and that growth in phosphorus demand is induced by income growth and shifting consumption patterns.