PhD studentship: How sustainable is the bioeconomy? A natural capital approach.

We are seeking applicants with Bachelors/Masters degree (2.1 or higher) in natural/environmental science, natural resource management, or similar, preferably with knowledge and experience in ecosystem services, natural capital, bioeconomy, and/or life cycle analysis to do a PhD on "Integrating natural capital into Bioeconomic industrial applications".

A studentship, which includes a €18,000 stipend, plus €5,500 contribution to fees per annum, is available for 4 years from 1st March 2019.

The PhD student will be registered in Trinity College Dublin, supervised by Prof Jane Stout (TCD) and Prof Cathal O'Donoghue (NUIG), and work as part of the SFI-funded BEACON-Bioeconomy research centre (http://www.bioeconomybeacon.ie/), with access to the support of BEACON infrastructure.

To apply: please send letter of application, outlining suitability for the post, and a CV with the names and email addresses of 2 referees, to Jane Stout stoutj@tcd.ie before 11th January 2019.

Project description: "Natural capital" comprises the world's stock of natural resources, including all living and non-living components and associated bio-physio-chemical processes, from which flow ecosystem goods and services which have benefits and value to human society. Natural capital is essential for a sustainable bioeconomy – it can be distinguished from physical capital (e.g. the factory that processes raw materials), social capital (e.g. employees harvesting and processing materials), and financial capital (e.g. the repayments on the operational costs). All types of capital are needed and an imbalance will reduce the capacity of the bioeconomy to function and threaten its long-term sustainability.

Natural capital stocks have been depleted globally, and although it is not about protecting the environment, the bioeconomy strategy could represent an opportunity to stop the loss of natural capital and the services that flow from it. However, integrating the natural capital approach into biobased industrial applications is challenging. One problem is in specifying and assigning "value" to natural capital in order to incorporate goods and services from nature into economic business models; another is making knowledge, tools and approaches accessible; and a third is reforming practices to align short-term private objectives with long-term public/societal ones.

This project will deliver a generic natural capital approach to developing bioeconomic activities in Ireland. This will involve determining impacts and dependencies (reliance on and outputs to) on natural capital across spatio-temporal scales (from local, regional, national to global; from cradle to cradle) for case-study applications, and developing general product rules.

Objective: Deliver generic and specific frameworks for integrating natural capital, tested on Technical Projects, applicable across industries. Demonstrate how natural capital accounting could underpin bioeconomy business case development and natural capital management.

Methodological approach: Using an LCA approach and incorporating economic valuations, costs and benefits of alternative pathways can be determined. The project will further identify pressure points at which intervention could minimise potentially adverse impacts on natural capital.