

Call for applications: Masters bursary for 2022

Gross Ecosystem Product for South Africa

Deadline for applications: 02 June 2021

Project background

It is becoming increasingly apparent that a fundamental rethink of our societies is necessary to achieve a just society for all, while maintaining the environmental conditions that underlie human prosperity. To reach the Sustainable Development Goals and other policy targets, countries will need to monitor a number of indicators that go beyond conventional socio-economic measures of progress, which have so far failed to take into account ecological declines and widening inequalities. One recent innovative measure that has been proposed is the “Gross Ecosystem Product” (Ouyang et al. 2020¹), which summarizes the value of the contributions of nature to economic activity. The GEP is modeled on the widely used Gross Domestic Product (GDP), but goes beyond the GDP’s narrow focus on economic activities towards a more inclusive measure that translates ecosystem contributions to the economy into monetary terms.

So far, the GEP has been applied to a case study in China, where it will be used to inform the country’s transformation to inclusive, green growth. In South Africa, national accounting is still largely based on conventional measures like the GDP, though recent efforts have been made to move towards more integrated sustainability indicators. For example, South Africa was part of a pilot project to test the development of a System of Environmental Economic Accounting (SEEA), and in 2014, Cole et al.² introduced a national “barometer” for inclusive sustainable development within environmental boundaries but beyond social deprivation. Across the world, the use of integrated social-ecological frameworks, indicators and targets will be key to revealing the interdependencies of sustainable development (Selomane et al. 2015³, Reyers & Selig 2020⁴). In this context, an indicator like the GEP could play an important role in setting more sustainable trajectories for South Africa, by providing decision-makers with clear and compelling evidence of the value of ecosystem services to human well-being.

Prof Reinette (Oonsie) Biggs, who holds the DST/NRF South African Research Chair (SARChI) in Social-Ecological Systems and Resilience, and a team of researchers at the Centre for Sustainability Transitions (CST) including Dr Odirilwe Selomane, an expert on sustainability indicators, and Dr Maike Hamann, an ecosystem services specialist, are interested to explore the application of the GEP method to South Africa, and its potential to guide decision-making in a more social-ecologically inclusive manner.

Centre for Sustainability Transitions, Stellenbosch University

The Centre for Sustainability Transitions (CST, <http://www.sun.ac.za/cst>) builds on a strong history of transdisciplinary research and complexity studies at Stellenbosch University, providing a vibrant research hub for solution-oriented sustainability science that hosts leading scientists and students from diverse disciplinary backgrounds in a state-of-the-art research centre. The primary objective of the CST is to provide transformational knowledge on the dynamics of multi-scale social-ecological change, and strategic insights into the new modes of research and governance that can bring about a just transition to a more equitable and sustainable society, in southern Africa and globally.

Call for applications

We seek motivated individuals interested to pursue a Masters degree linked to developing a GEP for South Africa, who have a keen interest in sustainability and ecosystem services, an interest and ability to integrate across the social and natural sciences, and who enjoy collaboration and working in teams. Interested individuals should have a strong academic track-record, participate in the events and activities of the CST, and be interested in developing a career around topics such as social-ecological systems, complexity thinking,

¹ Ouyang et al. 2020 Using gross ecosystem product (GEP) to value nature in decision-making. *PNAS* 117: 14593-14601.

² Cole et al. 2014. Tracking sustainable development with a national barometer for South Africa using a downscaled “safe and just space” framework. *PNAS* 111: E4399-E4408.

³ Selomane et al. 2015. Towards integrated social-ecological sustainability indicators: Exploring the contribution and gaps in existing global data. *Ecological Economics* 118: 140-146.

⁴ Reyers & Selig. 2020. Global targets that reveal the social–ecological interdependencies of sustainable development. *Nature Ecology & Evolution* 4: 1011-1019.

biodiversity and ecosystem services, and sustainability transformations. A variety of topics could be pursued, relating to one or more of the following:

- Developing and applying the GEP to South Africa
- Assessing the GEP's potential to inform decision-making for sustainable transitions
- Advancing the GEP method to incorporate dimensions of equity and justice

Supervisors will include Dr Maïke Hamann, Dr Odirilwe Selomane and Prof Reinette (Oonsie) Biggs. Studies will generally be registered as part of the CST's MPhil in Sustainable Development in the Faculty of Economic and Management Sciences at Stellenbosch University, but other options can be considered.

Funding

Bursaries will be funded from the DST/NRF SARChI chair held by Prof Biggs. The NRF minimum academic requirement for Masters funding is 65% average for the preceding Honours degree. Applicants for Masters funding must be 30 years of age or younger in the year of application.

Successful applicants will be funded either at Full Cost Study (FCS) or Partial Cost of Study (PCS). The FCS funding will be awarded to South African citizens and permanent residents only, who are either financially needy (i.e., those whose combined household family income is less or equal to R350 000 per annum), living with a disability, or exceptional academic achievers. PCS funding will be awarded to 5% of international students including South African citizens and permanent residents who could not be funded under FCS but meet other minimum requirements for the NRF scholarship funding criteria.

Subject to availability of funds, CST aims to top-up NRF funding to R 120 000 pa (R 10,000 per month) for Masters students. Tuition and reasonable running and travel expenses will also be covered where possible.

Requirements

All students applying for a Masters degree should have completed an Honours or four-year undergraduate degree or equivalent to be eligible. Prior experience with GIS and/or ecosystem service modeling is a distinct advantage, as are skills in database management. All candidates should show evidence of strong scholarly performance.

Based on the National Research Foundation's funding guidelines, strong preference will be given to South African nationals and under-represented groups.

To apply

Applications will follow a 2-step process:

Step 1. Apply to CST

All interested candidates should first apply to the CST by emailing the following documents to cstenquiries@sun.ac.za by **2 June 2021** with the subject line "**Masters application: GEP South Africa**":

- a motivation letter (detailing your previous academic and work experience, and how your experiences and skills speak to the proposed research topic, as well as your specific interests with regard to the proposed project),
- a detailed CV that includes your academic record, previous work experience, any scientific publications on which you have been an author, and the names of at least two academic referees,
- transcripts of academic qualifications,
- at least one example of recent written work (e.g. a paper, report, thesis chapter).

Step 2. Apply to NRF

Suitable candidates will then be instructed to apply on the NRF system by **17 June 2021**, and link their application to Prof Biggs' SARChI Chair. Instructions on this process will be communicated to successful applicants in step 1.

Please note that funding will only be awarded to candidates selected and approved by the NRF.

Enquiries

Enquiries can be directed to cstenquiries@sun.ac.za. Please use the subject line "**Enquiry: Masters GEP South Africa**", as enquiries about multiple adverts are being directed to this address.