



Scenario
DOCTORAL TRAINING PARTNERSHIP

NERC
SCIENCE OF THE
ENVIRONMENT

Translation of Remote Sensing data into Sustainable Development Indicators (TRISDI)

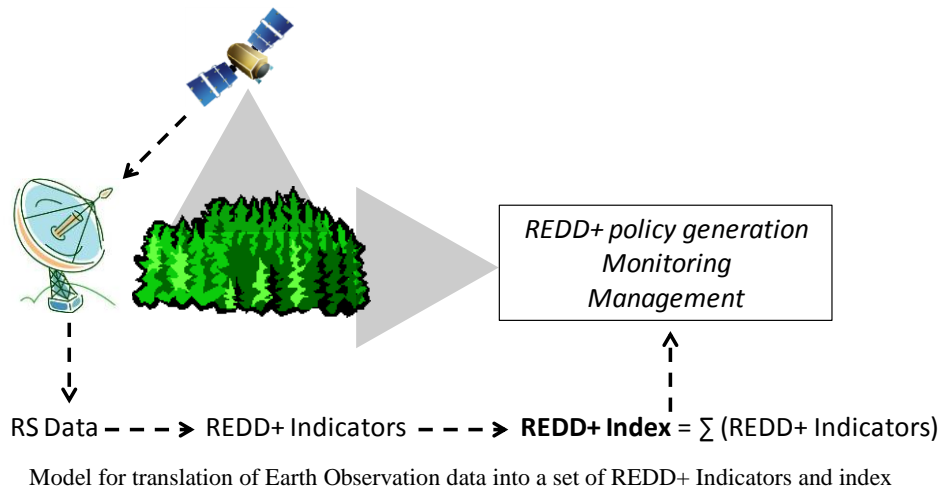
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Earth Observation (EO) is an important means by which changes can be observed on the Earth's surface. EO is an exciting technology of the 21st century and as satellite build and launch costs fall and other EO vehicles are available (drones, aircraft LIDAR etc) an increasing diversity of developed and developing countries have access and ownership of these rapidly advancing technologies. For example, Nigeria has launched three observation satellites - Nigeria Sat-1, Nigeria Sat-2 and Nigeria Sat-X - having a high-resolution (2m/pixel) imaging capability and intended application in a variety of tasks such as planning and monitoring of resource use. The National Space Research and Development Agency (NSRDA) of Nigeria is responsible for these satellites. However, anecdotal evidence suggests that the application of EO information in shaping and monitoring policy and management practices in Nigeria is far short of its potential. Surprisingly, there have not been any systematic analyses of the utility of EO data by government departments, agencies or research in Africa, although a current SCENARIO PhD student is currently exploring this topic in Brazil.

An obvious linkage between EO data and 'application' lies in the calibration of indicators and indices (where an index is a collection of indicators). This has considerable potential in, for example, delivery and measurement and evaluation (M&E) of progress towards the UN's 17 Sustainable Development Goals (SDGs). A specific field with much relevance to sustainable development is the REDD+ (Reducing Emissions from Deforestation and Forest Degradation) programme of the UN; designed to ensure that forests are protected and continue to support the livelihoods of people who depend upon them. Nigeria is a signatory to REDD+ and has (since 2012) selected Cross River State in the south-east of the country as a test-bed. The team also has access to test sites connected with ongoing Bill & Melinda Gates Foundation (BMGF) sponsored research on food security in Nigeria and these provide the proposed project with areas where agricultural land use is changing in response to diverse social and developmental pressures of great relevance to the SDGs.

The aim of the project would be to critically analyse the potential for applying EO data to populate SDG indicators and links to policy, management and M&E.



Training opportunities:

The student would be based at the University of Surrey and take part in the training available at the university. She/he would also be able to attend modules in CES and other departments, including the Surrey Space Centre. As an NPL-sponsored CASE student she/he would also be part of NPL's Post Graduate Research Institute, which provides links between students at NPL. The student will learn a variety of skills in processing EO data, GIS, landscape ecology, indicator development, forest management, institutional dynamics and policy development/implementation. Of especial relevance in terms of skills development would be the communication of complex scientific data into forms that non-specialists can use to help make informed decisions. The student would gain fieldwork experience in Nigeria (Cross River State and the Federal Capital Territory).

Student profile:

This project would be suitable for students with an undergraduate and postgraduate degree in geography, environmental science/management, agricultural science, ecology or conservation with a strong interest in Earth Observation, indicator/index development and the social sciences. Experience of natural resource management, forestry, Earth Observation and/or agriculture/food security in Africa would certainly provide an advantage.

Funding particulars:

This project has CASE co-sponsorship provided by the National Physical Laboratory (NPL).

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