

Programme	Title of the Project and research team	Project Overview	Objectives/ Outcomes
		<p>Belmont Forum (BF) Collaborative Research Action on Transdisciplinary Research for Pathways to Sustainability The Sustainable Development Goals (SDGs) were unanimously adopted by all member states of the United Nations in September 2015 (UN GA 2015). These goals encompass a broad range of economic, social, and environmental dimensions of sustainable development and set specific targets for the implementation of these ambitious goals. If the timeframe set by the UN to achieve these ambitious goals by 2030 is to be realized, there will need to be unrivalled international collaboration over the next ten years within the political, scientific, and civil societal realms. Furthermore, if humanity is to meet these goals, then clear pathways must be identified to achieve these goals for an equitable society within a sustainable Earth system. The pathways must account for environmental boundaries, critical drivers of human capacity, demographic changes, opportunities for technological and social innovation and diffusion, sound institutions and transformative governance capabilities, sustainable diets, and other critical socio-economic developments. While all SDGs and targets contain important challenges for both developed and developing countries, the international scientific community is urged to address the pressing problems of the least developed countries to support more rapid progress towards the goals.</p> <p>It is imperative to deliver sound, science-based pathways useful to policy- and decision-makers to enable them to make the difficult choices regarding sustainable development. These comprehensive pathways should help decision-makers identify and exploit synergies and anticipate and manage trade-offs among different SDGs. To be more decision and policy-relevant, governments, businesses, and civil society need to know what implications different sustainable development pathways might have at both global and regional scales. The available projections must be provided for different world regions so that decision-makers can understand what global pathways imply for their region and what the costs and benefits of action are relative to business as usual. Policymakers from around the world will need fact-based and integrated, global and regional, transformational pathways to craft long-term strategies.</p> <p>Although substantial progress has been made in our fundamental understanding of how some of the goals, such as the energy transition (SDGs 7 and 13) or health for all (SDG 3), can be achieved, we currently lack an integrated understanding of how all the goals can be achieved at global and regional levels. From a research perspective, this raises important questions on how to fill major gaps in our understanding of and capacity to project changes in areas such as governance, biophysical processes (e.g. oceans), and social transformations. For example, long-term projections for the world economy rarely, if ever, account for the impact of climate change or different demographic developments. Models for climate change mitigation tend to be poorly integrated with models for biodiversity as well as the use of land and water resources. We lack a proper understanding of the interrelations between policies aimed at material welfare, energy access, and environmental sustainability and we need to better understand how these areas interact with one another by overcoming the fragmentation that characterizes most research and modelling efforts today. The Belmont Forum and its partners recognize that we currently lack a truly integrated, comprehensive qualitative and quantitative understanding of sustainable development pathways that account for the inter-linkages between the economy, technology, institutions, environment, climate, biodiversity, and human development and that are anchored within the constraints of a sustainable Earth system. Below are the 4 projects selected for funding with SA scientists involved.</p>	

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<p>BF: Pathways CRA</p>	<p>1. The University of Pretoria was awarded a grant under the above-mentioned instrument as part of the PREMISS (Partnership for Research to Enhance Methodologies In Sustainability Science) project and consortium. This consortium consists of members from the following institutions: University of Pretoria (South Africa), Thuyloi University (Vietnam), Istanbul Bilgi University (Turkey) and National Taiwan University (Taiwan).</p> <p>The principal investigator and primary recipient institution is Dr Alexis Florent Aurélien Drogoul, IRD, France. Prof Hester Du Plessis from the University of Pretoria is a co-investigator.</p>	<p>- The proposal aims at testing participatory modelling approaches in three different local contexts and in relation to three different sustainability challenges. Modelling will make use of agent-based modelling, an approach to representing and exploring complex situations which is particularly appreciated in the context of management of natural resources. The consortium aims at creating a coordination plan around integrated environmental models and invests good social science competencies to produce guidance documents. The research team is highly qualified for the construction of such models. The component of social sciences contributing the Project may be more described for the management of participation processes. Also the experimental setting used for "testing" the approach may be explained more, making the case studies appear rather as an occasion of a "proof of concept" rather than a test field. The spatial distribution of the case studies will allow an interesting comparison across different global contexts. Excellent social science competences are used to produce didactic material of project results. Many technological innovations based on Artificial Intelligence contribute to the achievement of</p>	

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	<p>2. The Institute for Water Research at Rhodes University, Makhanda, together with a consortium of partners, have been successful in their application for the project titled: 'SDG-Pathfinding: Co-Creating Pathways for Sustainable Development in Africa', under the Belmont Forum: Collaborative Research Action Pathways to Sustainability call (https://www.belmontforum.org/projects/). Further details are provided below:</p> <p><u>Rhodes University Principal Investigator:</u> Prof Oghenekaro Nelson Odume (n.odume@ru.ac.za) Rhodes University research team: Dr Jane Tanner (j.tanner@ru.ac.za), Dr Jai Clifford-Holmes (jai.clifford.holmes@gmail.com), Prof Tally Palmer (tally.palmer@ru.ac.za) Consortium lead: Dr Barbara Willaarts, International Institute for Applied Systems Analysis, Austria (willaart@iiasa.ac.at) <u>Consortium partners:</u> Olivier Barreteau, French National Research Institute for Agriculture, Food and the Environment, France; Henri Mathieu Lo, GAIA, Senegal;</p>	<p>the sustainable development goal dedicated to industry, innovation and infrastructure</p> <ul style="list-style-type: none"> - The project seeks to develop and enhance understanding to SDG interactions at the local scale in African contexts (Senegal and South Africa) focussing on governance, participatory scenario development and collective learning. Social learning, and scenario contexts with strong Trans-Disciplinary approaches will be used to model outcomes, a 'living lab approach' has the potential to be scalable. The focus here around working with stakeholders to attain SDGs against a backdrop of serious structural societal (e.g., poverty) and environmental problems is the focus with the main objective of advancing "knowledge and understanding within and across different fields." 	

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	<p>Oghenekaro Nelson Odume, Institute for Water Research, Rhodes University, South Africa.</p> <p>3. University of KwaZulu-Natal as part of the Sustainable Agriculture Matrix (SAM) Consortium, whose proposal is titled “Guiding the pursuit for sustainability by co-developing a Sustainable Agriculture Matrix” was part of the BF CRA. As per the successful proposal, the South African Partner Principal Investigator is Professor Tafadzwanashe Mabhaudhi. Other personnel represented as team members in the proposal include Prof Rob Slotow, Prof Albert Modi, Dr Mjabuliseni Ngidi and Dr Nafiisa Sobratee</p> <p>4. DREAMS (Developing REsilient African cities and their urban environMent facing the provision of essential urban SDGs.</p> <p>Prof Timothy Dube is the South African PI for the South African component of the project.</p>	<ul style="list-style-type: none"> - Through the establishment of a Sustainable Agriculture Matrix (SAM), comprising indicators based on pilot studies, the project will add value by examining trade-offs inherent in promotion of sustainable agriculture with respect to a basket of SDGs. The SAM concept will be extended and employed to address the challenges, trade-offs, opportunities to achieve the objectives of SDGs related to the agriculture sector in six different countries, being the representative of various regions of the world. Thus, the project proposal aims at the broader use of SAM indicators across the world with a timely participation of stakeholders from the beginning of the project. - The project includes researchers from Germany, Uganda, UNSA, South Africa, Ghana and the USA. The project aims to provide insight and solutions towards addressing some of the pressing challenges mankind faces. It does this in a multi-disciplinary fashion and directly involves varied stakeholders that can leverage the 	

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		<p>project outcomes for positive demonstrable impact. The focus is on enhancing resilience in urban risk contexts</p> <ul style="list-style-type: none"> - The intersection of working from past experiences in three African cities (Accra, Kampala and Cape Town) will also help build this work into a growing body of African scholarship in this field. - DREAMS, as outlined above, is a project that identifies a gap in knowledge about urban-rural migration, urban planning/development strategies, and the role of computer-based solutions in improving municipal plans. While each of these aspects have merit in the proposal, they appear disjointed and removed from the realities of informal settlement residents. 	