



innogen

## **Innogen Institute Annual Report 2022-2023**



THE UNIVERSITY *of* EDINBURGH



## 1 Background

Innogen was established in 2002 as the ESRC Centre for Social and Economic Research on Innovation in Genomics, a collaboration between The University of Edinburgh (UoE) and The Open University (OU). As part of the ESRC Genomics Network, Innogen's goal was to build an internationally respected centre to enable social scientists and the ESRC to take a leading role in policy, public and innovation related debates on the social aspects of the life sciences.

In its first 12 years, the Innogen Centre received £7M core funding from the ESRC, £3M in institutional support, and £14M in external funding for 140 projects with international collaborations in 30 countries, resulting in over 900 publications, over 200 media reports and 400 knowledge facilitation activities.

Building on the success of the ESRC Innogen Centre, in 2014 the two host universities supported the establishment of the Innogen Institute (Institute for Innovation Generation), developing new methods and approaches to match the evolving opportunities arising from new scientific discoveries across an expanding array of advanced innovative technologies.

**This document covers the Institute's activity from April 2022 to March 2023** and demonstrates how Innogen continues to develop and ensure long-standing sustainability and growth, both academically and financially.

### 1.1 Mission

The Innogen Institute is a collaboration between The University of Edinburgh and The Open University that aims to produce high quality research to support the delivery of innovation that is profitable, safe, inclusive and societally useful, building on fundamental and applied research in science, medicine, engineering and social science.

### 1.2 Aims

- To build and consolidate new interdisciplinary approaches and methods to meet the challenges of supporting innovation in the 21st century in both developed and developing countries.
- To develop an integrated programme of research, consultancy, advice and teaching, in support of responsible, sustainable innovation that contributes to economic growth in the UK and abroad.
- To develop close collaboration across all colleges of the University of Edinburgh and all faculties of the Open University to ensure the Institute's work is optimally informed about scientific and medical developments and the innovation opportunities that arise from them, and to contribute to the delivery of impact from their research.

## 2 Innogen Institute Structure

### 2.1 Innogen Institute Management

The Innogen Institute Management Team includes the Innogen Director, the Deputy Director, and Co-Directors from both The University of Edinburgh (UoE) and The Open University (OU) covering the Institute's areas of interest. The Management Team meets monthly to make strategic and operational decisions relevant to the work of the Innogen Institute. It also contacts Innogen Institute Members periodically to support planning of the Innogen programme of work (teaching, research, policy initiatives, publications and communications) and to ensure effective implementation of activities and initiatives.

The current Management Team includes:

- **Prof Theo Papaioannou** (OU) Innogen Director
- **Dr Geoff Banda** (UoE) Innogen Deputy Director
- **Prof Joyce Tait** (UoE) Innogen Co-Director
- **Prof David Wield** (OU) Innogen Co-Director, Global Innovation
- **Dr Stuart Parris** (OU) Innogen Co-Director, Economics
- **Dr Niki Vermeulen** (UoE) Innogen Co-Director

- **Dr Dinar Kale** (OU) Innogen Co-Director
- **Dr Farah Huzair** (UoE) Innogen Co-Director
- **Prof Chris Warkup** (OU)

## 2.2 Innogen Institute Membership

There are four categories of Innogen Institute affiliation:

*Members* are drawn from UoE and OU permanent faculty or contract-based researchers who actively participate in Innogen Institute teaching, research, publications, knowledge exchange and capacity building.

*Associates* are chosen to enhance the Institute's international innovation and development mandate and are drawn from Innogen Institute Visiting Fellows, academic staff at universities in the UK and abroad, industry, policy and other stakeholder communities.

*PhD students* supervised by Innogen members who advance, enrich and diversify the work of Innogen and who are expected to be core contributors to the Institute's activities, outputs, and culture.

*Advisers* are individuals with an interest in the work of the institute who are invited to make a particular contribution in a specific area based on their capacity and skills.

A list of the Innogen Institute's current affiliates can be viewed at [www.innogen.ac.uk/people/](http://www.innogen.ac.uk/people/)

## 2.3 Staffing Changes

Professor Theo Papaioannou and Dr Geoff Banda continue in the roles of Director and Deputy Director, respectively.

Professor Alan Raybould, Innogen Co-Director, sadly passed away in October 2022 after a short illness.

Professor of Science Technology & Society at California Polytechnic State University, Matt Harsh, joined as an Innogen Associate.

# 3 Achievements in 2022-2023

## 3.1 Income Generation

The following grants were held by Innogen Institute Members in the period **April 2022-March 2023**:

- *Engineering and international development*. David Wield, Dinar Kale, Peter Robbins, Gordon Wilson. Open University DPP Development Funds, £20,000 (Jan 2021 – Dec 2023).
- *BovReg: Identification of functionally active genomic features relevant to phenotypic diversity and plasticity in cattle*. Ann Bruce, and others. Horizon 2020. Total grant 5.9M EUR (Sept 2019 – Aug 2023).
- *REACT-FIRST: Reduced Emission Aquaculture & Chicken Trial For Integrated, Responsible and Sustainable Transformation of CO2 into animal feed*. Alan Raybould and Joyce Tait. ISCF Future food production systems, £120,000 (Jul 2020 – Nov 2022).
- *Earth Observation enabled climate adaptation for the Kalahari Basin* David Wield, Co-I. Ac. Med Sci., £27,000 (Oct 2020 – Oct 2023).
- *RSE Saltire Award on Geographies of Collaboration*. Niki Vermeulen in collaboration with colleagues from CNRS Paris, £20,000 (Jan 2021 – Dec 2023).
- *EVALUATE project: developing an evaluation framework for international strategic partnership by universities*, Niki Vermeulen, academic lead in collaboration with CWTS Leiden. Funded by Erasmus+/British Council, Total grant €409,580 (Apr 2020 – Oct 2022).

- *DAAD fellowship*, Niki Vermeulen, €4400 (May 2022 – June 2022)

## **3.2 Member Publications**

### *3.2.1 Journal Articles, Books and Book Chapters*

Banda, G. (2023). The political economy of the African pharmaceutical sector's "industrial underdevelopment" lock-in: The importance of understanding the impact of persistent colonial extractive institutions. *Frontiers in Research Metrics and Analytics*. 8, p. 1-15 15 p.

Banda, G. (2022). Evolution of Zimbabwe's maize innovation ecosystems: Building an institutional innovation infrastructure that supports food security. *Africa Development and Resources Research Institute (ADRRRI) Journal*. 47, 3, p. 167-195 29 p.

Bruce, A. & Lowe, J. (2022). Pigs and Chips: The making of a biotechnology innovation ecosystem. *Science & Technology Studies*. doi: 10.23987/sts.111111.

Cresswell, K. M., Anderson, S., Mozaffar, H., Elizondo Solano, A., Geiger, M. & Williams, R. (2023). Socio-Organizational Dimensions: The Key to Advancing the Shared Care Record Agenda in Health and Social Care. *Journal of medical Internet research*. 25, p. e38310 e38310.

Cresswell, K., Sheikh, A. & Williams, R. (2022). 'Managed convergence' in health system digitalisation. *Journal of the Royal Society of Medicine*. 115, 8, p. 284-285.

Deane, K., Wamoyi, J., Mgunga, S., Changalucha, J. (2022) A win-win scenario? Employers' responses to HIV in Tanzania: A qualitative study. *PLOS Glob Public Health* 2(11): e0000058.

Dieng, R. S. (Guest ed.), Banda, G. (Guest ed.) & Chambati, W. (Guest ed.) (2022). Special issue on agrarian change, food security, migration and sustainable development in Senegal and Zimbabwe. *Africa Development and Resources Research Institute (ADRRRI) Journal*. 47, 3.

Dieng, R. S., Banda, G. & Chambati, W. (2022). Introduction: Agrarian change, food security, migration and sustainable development in Senegal and Zimbabwe. *Africa Development and Resources Research Institute (ADRRRI) Journal*. 47, 3, p. 1-7 7 p.

Engelmann, L., Montgomery, C., Sturdy, S. & Moreno Lozano, C. (2022). Domesticating models: On the contingency of Covid-19 modelling in UK media and policy. *Social Studies of Science*. p. 1-25 25 p.

García-Sancho, M., Lowe, J (2023). *A History of Genomics across Species, Communities and Projects*. Palgrave Macmillan Cham.

García-Sancho, M., Lowe, J., Viry, G., Leng, R., Wong, M. & Vermeulen, N. (2022). Yeast sequencing: 'Network' genomics and institutional bridges. *Historical Studies in the Natural Sciences*. 52, 3, p. 361-400 40 p.

García-Sancho, M., Leng, R., Viry, G., Wong, M., Vermeulen, N. & Lowe, J. (2022). The Human Genome Project as a singular episode in the history of genomics. *Historical Studies in the Natural Sciences*. 52, 3, p. 320-360 41 p.

Hogarth, S., Miller, F. A. & Sturdy, S. (2022). Multidisciplinary perspectives on the regulation of diagnostic

technologies. *Social Science and Medicine*. 304, 4 p., 115059.

Kerr, N. & Winskel, M. (2022). Have we been here before? Reviewing evidence of energy technology phase-out to inform home heating transitions. *Energy Research and Social Science*. 89, 102640.

Lamont, M. (2022). Marine Cultural Heritage and Sustainable Development. In: Cross, Charlotte and Giblin, John D. eds. *Critical Approaches to Heritage for Development. Rethinking Development*. London: Routledge, pp. 144–158.

Leng, R., Viry, G., García-Sancho, M., Lowe, J., Wong, M. & Vermeulen, N. (2022). The sequences and the sequencers: What can a mixed-methods approach reveal about the history of genomics? *Historical Studies in the Natural Sciences*. 52, 3, p. 277-319 43 p.

Lowe, J., García-Sancho, M., Leng, R., Wong, M., Vermeulen, N. & Viry, G. (2022). Across and within networks: Thickening the history of genomics. *Historical Studies in the Natural Sciences*. 52, 3, p. 443-475 33 p.

Lowe, J., Leng, R., Viry, G., Wong, M., Vermeulen, N. & García-Sancho, M. (2022). The bricolage of pig genomics. *Historical Studies in the Natural Sciences*. 52, 3, p. 401-442 42 p.

Merriman, C., & Deane, K. (2023). Evaluating HIV policy: a gender analysis of the representation of women and men in UNAIDS HIV-prevention guidelines. *African journal of AIDS research : AJAR*, 22(1), 9–17.

Mbaya, H., Lillico, S., Kemp, S., Simm, G. & Raybould, A. (2022). Regulatory frameworks can facilitate or hinder the potential for Genome Editing to contribute to sustainable agricultural development. *Frontiers in Bioengineering and Biotechnology* 10:959236.

Musoke, D., Nalinya, S., Lubega, G.B., Deane, K., Ekirapa-Kiracho, E., McCoy, D. (2023) The effects of COVID-19 lockdown measures on health and healthcare services in Uganda. *PLOS Glob Public Health* 3(1): e0001494.

Mutapi, F., Banda, G. & Woolhouse, M. (2023). What does equitable global health research and delivery look like? Tackling Infections to Benefit Africa (TIBA) partnership as a case study *BMJ Global Health*. 8, 3, 9 p., e011028.

Poulter, H. & Bolton, R. (2023). Embedding broader values in the regulatory model: An analysis of Ofgem's consumer value proposition for the natural gas distribution sector. *Utilities Policy*. 80, 9 p., 101470.

Sheikh, A., Coleman, J., Chuter, A., Williams, R., Lilford, R., Slee, A., Morrison, Z., Cresswell, K., Robertson, A., Slight, S., Mozaffar, H., Lee, L., Shah, S., Pontefract, S., King, A., Wiegel, V., Watson, S., Salema, N. E., Bates, D., Avery, A., et al. (2022). Electronic prescribing systems in hospitals to improve medication safety: A multimethods research programme. *Programme Grants for Applied Research*. 10, 7, 196 p.

Stetkiewicz, S., Bruce, A., Burnett, F. J., Ennos, R. A. & Topp, C. F. E. (2022). An interdisciplinary method for assessing IPM potential: Case study in Scottish spring barley. *CABI Agriculture and Bioscience*. 3, p. 1-13 13 p., 23.

Tait, J., Raybould, A., Hoyos Flight, M. & McGoohan, A. (2023). Circular and networked bioeconomies for Net-Zero food production: There is nothing magic about circles. *Circular Economy and Sustainability*. doi: 10.1007/s43615-022-00247-w

Weir, C. J., Adamestam, I., Sharp, R., Ennis, H., Heed, A., Williams, R., Cresswell, K. M., Dogar, O.,

Pontefract, S. K., Coleman, J. J., Lilford, R. J., Watson, N., Slee, A., Chuter, A., Beggs, J., Slight, S., Mason, J., Yardley, L. & Sheikh, A. (2023). A complex ePrescribing-based Anti-Microbial Stewardship (ePAMS+) intervention for hospitals combining technological and behavioural components: protocol for a feasibility trial. *Pilot and Feasibility Studies*. 9, 1, 18.

Zurek, M., Ingram, J., Bellamy, A. S., Goold, C., Lyon, C., Alexander, P., Barnes, A., Bebbler, D. P., Breeze, T. D., Bruce, A., Collins, L. M., Davies, J., Doherty, B., Ensor, J., Franco, S. C., Gatto, A., Hess, T., Lamprinopoulou, C., Liu, L., Merkle, M., et al. (2022). Food system resilience: Concepts, issues and challenges. *Annual Review of Environment and Resources*. 47, p. 511-534 28 p.

### *3.2.2 Reports, Policy Briefs and Working Papers*

Cross, C., Makene, F. S., Mackintosh, M., Ngilangwa, R. G., Santos, C., Mujinja, P. G. M. & Ngoma, T. (2023). Perspectives of providers of cancer care in Tanzania: evidence and implications for policy. Economic and Social Research Foundation, Dar es Salaam, Tanzania.

Banda, G., Mugwagwa, Julius., Mackintosh, M. & Mkwashi, A. (2022). The Localisation of Medical Manufacturing in Africa. IEJ Research Reports; Institute for Economic Justice, Johannesburg, South Africa.

Parker, K., Winskel, M. & Kerr, N. (2022). The role and impact of innovation agencies: An international review. Commissioned report. Climate Exchange.

Rosiello, A. & Vidmar, M. (2022). Mapping Innovation-Driven Entrepreneurial Ecosystems: An Overview 8 p. Commissioned report. Economic Research Institute for ASEAN and East Asia.

Watkins, A., Srinivas, S. & Wield, D. (2022) Emergency driven capacity building: COVID-19 and the UK's response toward increasing critical testing capability and production of PPE. The Open University, IKD Research Centre, working paper.

Zambetti, L.P., Vermeulen, N., van Heteren, L., van Drooge, L., Strouk, M., Sinisalo, A.S., Sayan, A., Salmi, A-M, Raulo, E., McQuarrie, S., McCartan, A., Mälkki, A., MacLeod, D., et al. (2022). Harnessing the power of evaluation to build better international strategic partnerships between universities - The EVALUATE framework and handbook. Zenodo. <https://doi.org/10.5281/zenodo.7510414>

### *3.2.3 PhD Thesis*

Charles WHETHAM, 2023.

Towards a Global System of Innovation: the Role of Donors in Immunisation for International Development. The Open University.

Elizabeth A.R. BABISTER, 2022.

Overseas Development Aid for Humanitarian Crises: Implications for the Recovery of Shelter and Settlements. The Open University.

Rodrigo LICOVSKY, 2022.

Internationalisation Dynamics in Contemporary South American Life Sciences. The Case of Zebrafish.

## **3.3 Activities and research impacts**

**23 March 2023**

**Meet Innogen Members: Dr Miguel García-Sancho**

We speak with Dr Miguel García-Sancho, Chancellor's Fellow and Senior Lecturer at The University of Edinburgh's School of Social and Political Science, about his forthcoming book and future research plans. His history of science expertise, which sits between the production of scientific knowledge and the broader context in which this knowledge circulates, sheds new light on innovation systems and on how science and technology are used to achieve a range of practical goals.

#### **16 March 2023**

##### **In Conversation event: Why is drug R&D so much less efficient now than it was in 1950?**

On the 2nd of February, Dr Farah Huzair, Lecturer in Science, Technology and Innovation Studies, at The University of Edinburgh's School of Social and Political Sciences, and Dr Jack Scannell, CEO of Ethers Pharmaceuticals and Innogen Associate, discussed the reasons underlying the marked decline in drug R&D output efficiency since 1950 and ways to improve it.

#### **8 March 2023**

##### **Extractive economic and political institutions in African countries have locked-in the pharmaceutical sector into industrial under-development.**

In a new article published in Frontiers in Research Metrics and Analytics, Geoff Banda analyses the impact of extractive economic and political institutions on the industrial development of the African pharmaceutical sector.

#### **27 January 2023**

##### **Networked Bioeconomies for Net-Zero Food Production**

In a new publication, Joyce Tait and colleagues argue that a 'networked bioeconomy' model, guided by cascading principles and fast-tracked using innovative technologies, may be more powerful than one based on rigid closed-loop circularity, in delivering sustainable food production.

#### **2 December 2022**

##### **Innogen at Science and the Parliament event**

On the 23rd of November, Theo Papaioannou, Monica Hoyos Flight, Adam Linson and Joyce Tait attended the 22nd annual Science and the Parliament conference at Dynamic Earth in Edinburgh. The event organised by the Royal Society of Chemistry (RSC) is designed to foster close relations with policymakers and key stakeholders.

#### **27 October 2022**

##### **Is 'Plan B' on the Horizon?**

As the UK's 'Plan B' alternative to association with Horizon Europe looks ever more likely, Chris Warkup wonders whether it will be any better in supporting UK business innovation?

#### **17 October 2022**

##### **Professor Alan Raybould (1963-2022)**

We are deeply saddened to learn of the passing of Alan Raybould, Chair in Innovation in the Life Sciences at the University of Edinburgh and Innogen Co-Director.

#### **22 September 2022**

##### **EurSafe22: Transforming Food Systems conference**

This year's EurSafe (European Society for Agricultural and Food Ethics) conference, organised by a committee led by Ann Bruce, took place 7-10th September in Edinburgh. Inter-disciplinary researchers from across Europe and beyond gathered to share the latest thinking on the ethical, societal and policy issues around agriculture, agricultural biotechnologies, aquaculture, animal use, food and the food supply chain.

#### **15 September 2022**

### **The hidden cost of R&D outsourcing**

By using game-theoretic modelling, Innogen Associate Jack Scannell and colleagues show that outsourcing R&D risks slowing progress in the biopharma innovation ecosystem.

**4 August 2022**

### **Sustainable aquaculture: Enabling innovation and implementation**

On the 20th of June representatives from the aquaculture sector, academia, environmental and governmental organisations took part in a virtual round table discussion co-hosted by SAIC and Innogen on how best to implement innovations that will improve the sustainability of aquaculture.

**14 June 2022**

### **New map provides different perspectives on the value of our Coasts.**

Dr Leslie Mabon, Dr Niki Vermeulen and Dr Sandro Carnicelli write in [The Scotsman](#) about the Young Academy of Scotland's interactive Coastal Knowledge Map.

**13 June 2022**

### **Innogen annual meeting 2022**

Innogen researchers and PhD students at The Open University and The University of Edinburgh gathered at High School Yards Teaching Centre in Edinburgh on the 26-27th May to present their work and share future plans.

**31 May 2022**

### **Prof Joyce Tait calls on the Scottish Government to reconsider its opposition to gene-edited crops**

Speaking to reporter Max Stephens from The Daily Telegraph, Innogen's Founding Director, said that rejecting the legislation currently under consideration in England that will allow gene-edited products to be grown and sold, will mean Scotland will lose out.

**21 April 2022**

### **Meet our visiting researcher: Dr Joe Sallmen**

Dr Joe Sallmen recently joined Innogen on secondment from The John Innes Centre in Norwich, where he is a postdoctoral researcher.

Summaries of these and Innogen's latest activities can be found on the **Innogen website** (<https://www.innogen.ac.uk/>), social media channels (Twitter, LinkedIn, Facebook) and in our quarterly newsletters that are sent out via email to over 800 subscribers.

## **3.4 External Appointments**

### *Geoffrey Banda*

Member, African Union/NEPAD Working Group on developing Research for Health and Innovation Policy for the African Union;

Member, African Union/ NEPAD Technical Working Group, Fund for Pharmaceutical Development (FAPD);

Member, Advocacy Advisory Committee, African Vaccine Manufacturing Initiative UNIDO Expert Group Meeting;

Member, Steering Committee, Tackling Infections for the Benefit of Africa (TIBA) Research Consortium.

### *Farah Huzair*

Steering Committee member, BBSRC-funded crop genome editing resource, John Innes Centre.



*Andy Lane*

Board member of Buckinghamshire and Milton Keynes Natural Environment Partnership  
Board member of on Arc Universities Environmental Partnership

*Maureen Mackintosh*

Panel member, Medical Research Council, Antimicrobial Resistance in a Global Context funding panel;  
Chair, ESRC Roundtable discussion of the role of social science in the Health Systems Research Initiative, April;  
Lead expert on Appropriate Incentives, UNIDO Expert Group Meeting on Practical Approaches for Government Incentives, Mobilizing Affordable Financing and Access to Technology for the Pharmaceutical Industry in Africa.

*Theo Papaioannou*

Member, Department for Energy Security and Net Zero (DESNZ) Expert Peer Review Panel;  
Member, Editorial Advisory Board, Tecnoscienza, Italian Journal of Science and Technology;  
Member, Editorial Advisory Board, International Journal of Technology Management;  
Member, AsSIST-UK (Association of Science, Technology and Innovation) Special Advisory Group;  
Member, NESTA Informal Steering Group on Innovation Policy;  
Member, Business, External Peer Review Group (PRG) on Evaluation, Business, Energy and Industrial Strategy (BEIS);  
Member, Innovation Caucus, ESRC-INNOVATE UK.  
Member of the ESRC Impact Acceleration Account (IAA) Panel

*Stuart Parris*

Member, Advisory Board, School of Economics Finance and Accounting (EFA);  
Faculty of Business and Law, Coventry University.

*Peter Robbins*

Co-investigator, H2020 project to stimulate sustainability transitions in European agriculture through better understanding the roles played by farm advice in farmer decision-making. (European Commission).

*Miguel García-Sancho*

Member, Editorial Board, Endeavour (Journal);  
Member, Editorial Board, Theoria (Journal);  
Member, Editorial Board, History and Philosophy of the Life Sciences (Journal).

*James Smith*

Member, Economic and Social Research Council (ESRC);  
Trustee, Practical Action;  
Committee(s) Member, League of European Research Universities;  
Chair, international advisory board, Centre for Tropical Livestock Genetics and Health.

*Smita Srinivas*

T20 co-chair for Task Force 1 on Global Health and COVID-19.

*Joyce Tait*

Member, Synthetic Biology Leadership Council, UK;  
Member, Life Sciences Scotland Triple A (Animal Health, Aquaculture and Agribusiness) Subgroup, Life Sciences Scotland;  
Member, EPSRC Peer Review College;  
Member, Governing Board, Industrial Biotechnology Innovation Centre;  
Member, Editorial Board, Engineering Biology Journal;  
Member, ESRC UK Innovation Caucus

Member, Advisory Board, EU Water Mining Project, TU Delft.  
Member, Advisory Board, InLightenUs Project, University of Edinburgh.

*Niki Vermeulen*

Visiting researcher, Centre for Science and Technology Studies (CWTS), Leiden University;  
Member, Royal Society of Edinburgh Young Academy;  
Member, Innovation Caucus;  
Editorial board, Palgrave Communications;  
Editorial board *Inscriptions: writing the social studies of science*, Manchester University Press;  
Editorial board *EASST Review*.

*David Wield*

Research Assessor, Carnegie Trust for the Universities of Scotland;  
Fellow, ESRC Peer Review College;  
Member, UK Innovation Caucus;  
Editorial Board, *Technology Analysis and Strategic Management*;  
Editorial Board, *Intl Journal of Technology Management and Sustainable Development*.

## 4 Teaching and Capacity Building

### 4.1 PhD Students

Innogen research staff continue to offer supervision for postgraduate study across a breadth of areas relating to social science and humanities aspects of the life sciences and the bioeconomy. **Between April 2022 and March 2023, the following students were studying for their PhDs or submitted their thesis:**

Charlie Whetham  
(Prof. Theo Papaioannou)

Giorgos Zoukas  
Tara Wight  
(Dr Ann Bruce)

Anna Couturier  
Rosalind Attenborough  
(Dr James Mittra)

Owais Anwar Golra  
Jin Ding  
(Dr Alessandro Rosiello)

Rodrigo Liscovsky  
Fiona Coyle  
Louis Volkmer  
Kate Bowell  
(Dr Niki Vermeulen)

Pallavi Joshi  
(Dr Dinar Kale)

Elizabeth Babister  
Kirsteen Merrilees

(Dr Peter Robbins)

Paradzayi Jawona

(Dr Geoff Banda, Prof Joyce Tait and Farah Huzair)

Siddarthiya Pillay – University of KwaZuluNatal, South Africa

(Dr Geoff Banda –second supervisor)

Hellen Mbaya

(Prof. Joyce Tait)

Richard Mutisya

(Prof. Maureen Mackintosh)

Kirsteen Merrilees

(Prof. David Wield)

Cristina Moreno Lozano

Jarmo de Vries

(Dr Miguel García-Sancho)

#### **4.2 Masters Level Teaching**

Innogen members, play leading roles in the development and delivery of the following programmes:

*MSc in Management of Bioeconomy, Innovation and Governance (MSc BIG)*

*The University of Edinburgh.*

This programme is an innovative and dynamic postgraduate qualification designed to meet the increasing demand for skilled people in the growing global bioeconomy. The MSc BIG responds to a number of key challenges, including: developing sustainable innovation in a responsible manner; identifying and exploiting value throughout innovation ecosystems; and bringing new technologies to existing and emerging markets. MSc BIG graduates are taught how to use customized methods to deal with complex issues ranging from foresight and innovation systems analysis, strategic decision making in companies, value chain analysis and business model development, product and process regulation, to ensuring ‘responsibility’ in research and innovation. Students also have the opportunity to write their dissertations on collaborations through work-based placements with organizations or companies involved in the bioeconomy.

MSc BIG welcomed its inaugural class in 2012 and to date has successfully graduated over 80 students, many of whom have gone on to take strategic roles in the bioeconomy.

*Masters in Global Development*

*The Open University (Distance learning).*

In September 2020, this course succeeded The Open University’s Masters Programme in Development Management, which has graduated over 1,000 mid-career professionals from more than 100 countries.

The MSc in Global Development is an innovative, interdisciplinary and flexible course that equips students with the knowledge and skills to investigate, understand, and respond to key development challenges. Students learn to critically examine development theory, policy and practice across a range of issues. These include environmental sustainability, socio-economic security, global migration, conflict, and the changing politics of development. They will also build their capacity for critical and reflexive thinking, independent

study and research, and collective dialogue and action.

## **5 Forward Plan, 2021 - 2022**

### **5.1 Funding Opportunities**

The Innogen Institute is well placed to meet the long-term opportunities arising from the current funding environment. The framework of methods and approaches that we have developed has proved flexible and adaptive in the face of shifting innovation opportunities raised by new scientific discoveries and societal needs and by the reorganisation of research funding in the UK, particularly the increased emphasis on interdisciplinary research in UKRI and the large sums being channelled into innovation-related translational research.

The following collaborations are also leading to new funding opportunities:

- the five-year Edinburgh University Synthetic Biology Research Centre (SynthSys Mammalian) that links two of our key areas of interest, synthetic biology and regenerative medicine
- the SynbiCITE Innovation and Knowledge Centre, based in Imperial College, supporting innovation in synthetic biology (Joyce Tait has a 5% staff role on this programme)
- Edinburgh Global Academy for Agriculture and Food Security
- Edinburgh Plant Science Network
- UK Energy Research Centre
- Working with OU Scotland
- TIBA (the NIHR Global Health Research Unit Tackling Infections to Benefit Africa at the University of Edinburgh)
- Innovate UK and the React-First Consortium

The Open University is currently supporting the Innogen Institute through its Faculty of Arts and Social Sciences (FASS) and its Open Society Challenge initiative.

Our expertise across a broad range of important current innovation policy priorities, our proven record in delivering excellent reports, and our interdisciplinary expertise makes us partners of choice in projects led by others within Edinburgh University and also nationally and internationally. We receive many more invitations to collaborate, and opportunities to lead major proposals, than we have the staff resources to accommodate.

### **5.2 Teaching**

We are continuing successfully to promote the Masters in Management of the Bioeconomy, Innovation and Governance, and the associated teaching provisions in collaboration with the Universities of Glasgow and Strathclyde. We will also continue to develop and promote the OU's Masters in Global Development and CPD offerings based on the Masters' programmes.

### **5.3 Innogen Management**

The following are the management team's objectives for 2023-24:

- To maintain and grow effective collaborations between Innogen members and staff located in the University of Edinburgh, the Open University and the Open University Scotland through a new memorandum of understanding (MoU) that aims to maximise the benefits arising from the skills located in each institution.
- To maintain and grow the body of social science and interdisciplinary knowledge on innovation through new and extended programmes of research.
- To extend the Institute's activities to cover a broader range of advanced innovative technologies,

as scientific research opens up new opportunities that are relevant to the Institute's expertise.

- To build and consolidate the Institute's international collaborations around the world.
- To build the Institute's doctoral and Masters' level teaching and CPD programmes to support researchers and practitioners in industry, academia, policy, regulation and engagement.
- To continue to increase Innogen's impact on practice and policy, through documented uptake and use of Innogen Institute research outputs and advice in Scotland, the UK and internationally.
- To continue constructive engagement with stakeholders and relevant institutions through effective communication and knowledge exchange, including building a network of Innogen Alumni.