1. G	General project information		
1.1	Project reference Number	Blantyre Blantyre Clinical Research Facility	
1.2	Name of organisation	University of Glasgow	
1.3	Lead partner(s) organisation	University of Glasgow (UofG) College of medicine (COM) University of Malawi	
1.4	Project title	Blantyre Blantyre Research Facility	
1.5	Reporting period	From: 30/10/2020 To: 30/04/2021	
1.6	Reporting year	Year 4	
1.7	Project start date	30/03/2017	
1.8	Project end date	31/12/2022	
1.9	Total project budget*	2,214,500	
1.10	Total funding from Scottish Government*	1,214,500	
1.11	Provide a brief description of the project's aims, highlighting which of the Sustainable Development Goals (SDGs) your project is working towards? (200 words)	Our vision is the establishment and deployment of a clinical lab facility at College of Medicine (COM). This will enhance ongoing collaborations and evidence-based development of research and training programmes, medical interventions and policy development in Malawi in the key area of NCDs and their interface with IDs, especially TB & Malaria. This will bring to bear internationally renowned expertise in NCDs and IDs in Glasgow (The Wellcome Centre for Integrative Parasitology, MRC Centre for Virus Research, BHF Centre of Excellence and Versus Arthritis Centre of Excellence) on national health priorities in Malawi. Significantly, it will complement existing Glasgow partnerships with the Malawi Liverpool Wellcome Trust Clinical Research Programme (MLW) and Centre for Global Health Research. In the longer term, this will provide a centre of excellence for the region in NCDs research. This project contributes directly to SDG 3 & 4 (Good Health & Well-being & Quality Education), SDG9 (Industry/Innovation & Infrastructure) SDG7 (Affordable & Clean Energy) SDG 17 (Partnerships for the Goals).	

2. Project progress and results

Please use this section to give an update on the progress the project has made during this reporting period.

2.1 Provide an update on the progress your project has made over the past 12 months. Use this space to update us on what has gone well and any challenges you have experienced, detailing how you have overcome these. (Max 500 words)

The laboratory refurbishment is now complete with the final benching being installed and the lab being painted and the vinyl floors polished. During COVID19 lockdown we were able to progress equipment procurement and we took delivery of a chemistry analyser and other diagnostic equipment. We are currently in the process of procuring an immuno-assay analyser and some under bench freezers for the lab. Testing and fine tuning of equipment is ongoing and lab staff are progressing the lab accreditation process. With the completion of the lab, we are fielding approaches from external customers and projects that see the lab as a perfect resource for their future initiatives. Use of the lab for COVID19 projects is ongoing with a recent Scottish Funding Council, Global Challenges, Research Fund awarded to a UofG staff member who is using it as a base for the project. Similarly, researchers at COM are continuing to use the labs microscopy and sample storage facilities. With the increased traffic through the lab, we are establishing a comprehensive charging system for use of the lab and its equipment. Guidance and assistance in moving COM to embrace a full economic costing model for future grant applications is also planned. The additional award of £200,000 to the lab will enhance the immunophenotyping and genomic sequencing capacity in Malawi. UofG is internationally recognised as a world leader in this area and this award will allow the transfer of protocols and assays via the Blantyre Blantyre lab. From this initial funding and project, opportunity exists for expansion towards a vaccine efficacy study, which would have enormous direct impact on future disease outbreaks and resilience in Malawi. With the expansion of research projects in the lab further recruitment of two postdoctoral research assistants is underway, job descriptions have been written and we hope to fill these posts very soon.

COM have recently undertaken some upgrade of the fabric of the building housing the lab and have installed disabled access. They are also looking into additional security measures such as extra lighting and CCTV.

A particularly exciting add on to the overall project is the funding secured in the last year by the grant holder from the Scottish Funding Council, Global Challenges Research Fund (£63,500) to install a clean energy solution to the lab. In collaboration with COM and Botswana based company African Sun Energy. The solar project will install 80 photovoltaic panels to the roof of the lab to provide all the labs power requirements. (See case study for further detail).

Has the focus or plans for delivery changed significantly during the last year? Please highlight what issues or challenges prompted this change and how you anticipate any changes in focus will impact on the previously agreed outcomes (Max 500 words)

The original focus and plan for the lab remains the same, to provide a self-sustaining state of the art fully accredited lab for COM. The COVID19 pandemic has if anything emphasised just how much Malawi needs this lab facility. Significant further opportunity exists to drive research capacity, and to attract further research income to the lab.

Taking into consideration what you have achieved during the last 12 months, along with any challenges you have experienced, please highlight to us what lessons you have learned, and how these will be applied in the project in the future. (Max 500 words)

The COVID19 pandemic and resulting lockdowns in Malawi & Scotland necessitated a move to online communication and Zoom meetings with partners at COM. Embracing this technology allowed the project to continue despite the global disruption. UofG staff stayed in constant contact with COM staff and were able to provide valuable support and advice on how best to tackle the challenges encountered by the virus. A move to online training for lab staff was successful with the lab manager taking part in online Chemistry Inventory training organised by UofG. Similarly, photovoltaic training for the solar power project took place online over the course of a week in April. Thus, we have learned that digital online training works well with partners in Malawi, and we will look to expand such training opportunities in the future for the lab. The pandemic very much amplified the need to adopt flexible working practices with overseas partners. Our ability to respond to a rapidly changing environment meant even under severe lockdown measures in Scotland and in Malawi we were able to progress the project.

3. Partnerships and collaboration

This section allows you to discuss how partnership working is progressing on the project, as well as wider collaboration and sharing of learning.

Provide an update on how partnership working has gone in the past 12 months. Let us know about any highlights, challenges or changes to roles and responsibilities. (Max 350 words)

A focus of this project has always been our partnership with colleagues at COM, these remain strong and one challenge this year has been the change in leadership at COM. Although there has been a change in the Principal at COM the previous principal remains the main contact for all UofG projects. His drive, knowledge and enthusi- asm are key factors in the success of many COM projects. The new acting principal is very supportive of the Blantyre Blantyre project and has experience of working closely with the grant holder on other initiatives. During this period of change we supported Malawian colleagues reassuring them our part- nership would not be affected by management change at COM. An example of the closeness of our partnerships in Malawi is demonstrated by the renewal this year of UofG honorary staff status for colleagues based in Malawi.

A highlight of partnership in Malawi this year has been a National Institute for Health Research application led by UofG staff members. This application to establish a Global Health Research Centre in Malawi is under consideration. The stage one application has been submitted in collaboration with, Lilongwe University of Agriculture and Natural

	Resources, University of Malawi, College of Medicine, Malawi University of Science & Technology, Malawi Epidemiology & Intervention Research Unit. If successful, all partners will be invited to proceed to the second stage of the application which could mean funding of up to £9 million pounds over 5 year for the centre with UofG and COM coordinating the set-up of the new global health centre in Malawi in Sept 2022.			
3.2	Have any Scotland-based staff visited the project in the past 12 months? Give details including key activities and outputs of these visits.			
No travel due to COVID19 restrictions. We have mitigated this by keep contact with colleagues at College of Medicine using Zoom technology.				
Date of visit		Key achievements / outputs of visit	Follow-up actions	
N/A				
3.3	Please tell us about any dissemination and learning throughout this reporting period. How have you promoted effective learning across the project? Please explain what processes you have used both internally and externally to share learning from the project so far, and how this learning is being used. (Max 500 words)			
	The project has always strived to be a beacon of best practice in all its learning and teaching undertakings. The management team promote knowledge exchange on many levels involving researchers, administrators and routinely mentor early career scientists. Training of staff in additional lab processes and new software (chemical inventory) has taken place in the last year. In addition, the solar power project has afforded lab staff and individuals from COM and the surrounding Blantyre community training in photovoltaic systems and installation. Relevant UofG online training opportunities are always flagged to colleagues at COM and because of the COVID19 lockdowns we have harnessed digital technologies and the WCIP organised Glasgow Research Parasitology Seminars (GRiP-ing) are now being delivered in a webinar format with the seminars being recorded and later hosted on You Tube. The seminars are then advertised on the Blantyre Blantyre lab twitter pages for all to tune into.			
	Lab staff and the lab management team continue to deliver seminars and disseminate updates on the lab and its new processes to fellow colleagues at COM and to the wider Malawian scientific community. This year lessons learned from the overall project have been included in concept notes and briefing papers forwarded to the European Commission by The Guild. (See section 8 for more detail)			
3.4	If the project has been able to complete a mid-term project evaluation in the past 12 months, please provide detail of the outcome of the evaluation. (Max 500 words).			
			ul for the management team to the overall aims of the project.	

	The end goals of the project have not changed (to provide COM with a fully refurbished accredited state of the art lab). The lab and COM are now well placed to contribute significantly to Malawi's aims to develop its scientific research capacity.
3.5	Please highlight how you are maintaining an awareness of others working in this region, giving details of collaboration, joint working or partnerships with others. (Max 500 words)
	The grant holders' position as Dean of Global Engagement (Africa & Middle East) affords him access to many and varied high level networks in the region. He is also Interim Deputy Director of the Institute of Infection Immunity and Inflammation and sits on strategic management committees at UofG. He is tasked with writing and disseminating strategic policy with regard to Africa. He continually sources potential research and funding opportunity and collaboration prospects for the Blantyre Blantyre facility. He is in regular contact with institutions across Malawi, he feeds into Scotland Malawi Partnerships organised events, delivers seminars, hosts symposia and acts as a point of reference for advice to researchers drafting grant applications both in Malawi & in Scotland. (See additional information on all our joint working & partnerships at question 8)
4. Safeg	uarding and fraud
Please e	ensure you complete questions 4.1 and 4.2 even if you have no incidents to report.
4.1	Have there been any safeguarding incidents, either relating to staff/volunteers or beneficiaries of the Grant or the Project, in the last 12 months?
	No
4.2	Have these incidents reported at 4.1 been reported to relevant authorities, and if so, to whom?
	N/A
4.3	Describe what action has been taken, and highlight any lessons learned.
	N/A
4.4	Have there been any incidents in the last 12 months of financial mismanagement, theft, fraud etc, either relating to the Grant or the Project or which affects the organisation?
	No

Have these incidents reported at 4.1 been reported to relevant authorito whom?				vant authorities, and if so,
	N/A			
4.6	4.6 Describe what action has been taken, and highlight any lessons learned.			
	N/A			
5. Risk a	assessmen	t		
5.1	Have any issues materialised during this reporting period? If so, how were they addressed?			
	Please refe	r to risk assessi	ment provided at application sta	ge.
Assump	tion	Risk	Action taken	Was this included in the Risk Assessment Table in your application?
COVID 19 pandemic continues to impact globally		procurement, travel, potential commercial	Increased use of digital platforms to remain in contact with partners, an emphasis on grant writing, sourcing alternative funding. Encouraging a can-do culture and free flow of advice and experience.	No
See additional risk assessment document for further detail.				
6. Inclusion & accountability Thinking specifically about the past 12 months, please use this section to tell us how you are mainstreaming through your project, ensuring that you are aware of and actively working to reach vulnerable and marginalised groups.				
	Is the project still relevant for the beneficiaries you are working with? Please highligh how you ensure accountability on the project, ensuring beneficiaries have the opportunity to feedback on the project and influence its development? (max 350 words)			
	The project is still very relevant to the beneficiaries, given the COVID19 pandemicom and Malawi more than ever require this state-of-the-art lab to give them a strong starting point with the relevant infrastructure, knowledge and support to be able tackle future pandemics. The project management team meet regularly and takes soundings to ensure we are being inclusive in all matters. The project ethos has always			

	been based on reciprocal sharing of skills and knowledge, we continue to champion this approach to reach vulnerable and marginalised groups.
6.2	Do you have an awareness of particularly vulnerable or marginalised groups within the community in which your project is working? Please give details on how you are disaggregating data to recognise these groups across the project. (Max 350 words)
	The project continues to build capacity at COM. It provides local employment for lab staff, support staff and other ancillary staff at COM. It also provides opportunity for marginalised groups in the community. A perfect example of this is the photovoltaic training opportunity advertised to not only COM staff but to the wider Malawian community. Of the total number of applications received for the training 32% were women and 31 people were invited to take part in the weeklong training. Our partner in the solar power project African Sun Energy is also working with Renew "N" Able Malawi a non-governmental organisation that aims to enable Malawians to renew their lifestyles based on renewable, clean, and more efficient resources. The added value to our original lab project brought about by the solar power initiative and its transfer of knowledge and skills is testament to our inclusive working practices in Malawi.
6.3	How is your project working to actively meet the needs of these vulnerable and marginalised groups, ensuring they are benefiting from the project? Please outline any mechanisms you are using. (Max 350 words)
	As well as providing local employment for lab suppliers, security, local builders, ironmongers etc the projects research outputs will benefit vulnerable and marginalised groups in Malawi. The emerging health research data from projects hosted at the lab will impact significantly on Malawi's ability to better manage its clinical response to future healthcare challenges and pandemics. The cornerstone of UofG's Explore - Strategy 2025 is embedding the principals of equality diversity and inclusion in support of researcher development. The additional Immunogenicity project which will commence soon in the lab will engage with a cohort of study volunteers, this direct contact will establish mechanisms for closer engagement with the community and will vaccinate Malawians against COVID19. Taking forward these mechanisms and principles to connect and collaborate with marginalised groups we develop a global understanding of pressing problems and challenges and in doing so we develop the means and relationships through which we can use knowledge to make a difference for both Malawi & Scotland.
6.4	Taking into consideration some of the challenges of mainstreaming, please describe any challenges you have faced in reaching vulnerable and marginalised groups, how you have overcome these or plans you have developed to support inclusion on the project. (Max 350 words)
	The breadth and impact of the project is immense the numerous collaborations and projects that flow from the Blantyre Blantyre project with partners in Malawi is difficult to quantify. The project team's reputation and trust has allowed it to attract a diverse spectrum of the population to engage with COM on many levels. An example of this recently is our engagement with a local theatre group in Blantyre to boost community acceptance of good infection control and to better disseminate knowledge surrounding the benefits of vaccines in the population. We have plans to extend our Public Engagement reach in Malawi by engaging with other researchers and as part of WCIP's ongoing Public Engagement strategy to allocate further funds to disseminate the outputs from the project to a wider audience.

7. Financial information

This section will be reviewed alongside your budget report, which should be included alongside your narrative and logframe. Please ensure this spreadsheet is completed with both a detailed breakdown of expenditure for this financial year, along with your projected spend for the next financial year.

Please note carry-over of funds to the next financial year should have been agreed with the Scottish Government by January 31st of the current financial year.

With reference to your budget spreadsheet, please give a detailed explanation of any variances between planned and actual expenditure, including reasons for the variances and whether these are as a result of COVID-19, timing issues, price achieved, quantity etc. If these are temporary variances, please outline plans for expenditure. (Max 500 words)

The project undertook a comprehensive reprofiling of its budget in January of 2021. (See previously submitted documentation).

We identified underspends and took soundings on how best these funds could be used. With the increase in projects through the lab we now intend to recruit two new post-doctoral research assistants, purchase an immune assay diagnostic machine and freezers. We will also support the ongoing research in the lab with necessary additional reagents and consumables funded from the underspend. Due to the COVID19 pandemic the project did not spend all its planned in country or international travel and subsistence costs in this period. We included these savings into the reported underspend figure. We were also recently notified of an annual salary increase for COM staff and in line with their HR policy we will honour those increases for Blantyre Blantyre staff.

We will adhere to the agreed expenditure laid out in the reprofiled budget process through to the end date of the project in Dec 2022.

7.2 Please give details of any capital expenditure in this reporting period. (Max 350 words)

Capital expenditure in this reporting period has included the purchase of key pieces of analysis equipment. (Chemistry analysers and an Immuno assay analyser). Under bench and upright -20 freezers have also been ordered and should be delivered soon. Theses pieces of equipment will significantly enhance the commercial viability of the lab and will allow it to attract significant and varied research projects to the lab. We already have interest from an external party who wishes to use the Immuno-assay analyser.

7.3 Please explain how you have worked to ensure cost effectiveness on the project in the past 12 months, whilst maintaining the quality of delivery. (Max 350 words)

The project continues to adhere to UofG & COM strict procurement policies. Purchases are always initially approved in advance by the lab management team to ensure continuity of quality and service. Where possible up to three quotes are sought for equipment purchases, approved suppliers are used and Malawi in country service and maintenance teams are engaged.

8. Any other information

Use this section to tell us any other relevant information regarding your project, including any information relevant to COVID-19 and how that has impacted project activities and/or budget. (Max 500 words)

The Blantyre Blantyre project acts as a catalyst for many other initiatives and projects, a few are detailed below:

ARUA/The GUILD: The grant holders' position within the University of Glasgow continues to afford him access at the highest level to African & EU policy makers and influencers. As a follow up to the previously successful "Capacity Strengthening in Africa" meeting held in February 2020 he hosted in February 2021 an online follow up symposium entitled "Enhancing Knowledge Transfer and Exchange in African HE". In partnership with the African Research University Alliance (ARUA) the aim of the symposium was to explore developments over the last 12 months and discuss how to build on links between HE & industry, which is pivotal for economic and societal development. The 2021 online event was very successful with attendees coming from across Africa's business and academia sectors.

European Commission Report: The Blantyre Blantyre Research Facility project contributed recently to a prestigious European Commission Africa - Europe Innovation Report. Commissioned by the Directorate General for Research Innovation the report used lessons learned from the Blantyre Blantyre project as an example of best practice and joint working that addressed the UN's sustainable development goals. The reports below were submitted by The GUILD to the EU:

https://www.the-quild.eu/publications/position-papers/index.html

Confronting our Common Challenges: a new Approach to Strengthening Africa's Research, Innovation and Higher Education Capacity

Concept note on EU - Africa partnership | 9 July 2020

The African Research Universities Alliance (ARUA) and The Guild call for sustainable investment in African knowledge societies by creating Centres of Excellence (CoE) to confront common challenges for both continents.

Recommendations for Strengthening African Research Universities

Position Paper on EU - Africa partnership | 18 February 2020

The Guild and ARUA outline key proposals and principles for a future EU-Africa partnership.

AFRIBOP 2020

This weeklong annual course aimed at PhD students and early post docs from across Africa was held virtually from 26th - 30th October 2020. Hosted by the grant holder it consisted of

intensive interactive learning sessions and symposia on recent advances in immunology, parasitology of malaria, HIV, TB, Helminths & HPV and other viruses including COVID19. Delivered by some of the leading researchers in the field. Participants benefited from grant writing, science communication and career mentoring sessions. Of the 30 students who attended the course several were from Malawi.

UofG International Connect Newsletter

The grant holder in his role as UofG Dean of Global Engagement (Africa & Middle East) recently was the focus of UofG's External Relations International Connect Newsletter. The feature highlighted Prof Garside's activities in Africa was circulated widely and focused discussion on future collaborations from research to education partnerships. https://www.gla.ac.uk/explore/internationalisation/uofgconnect/newsletters/march2021/

National Institute for Health Research: An application lead by a UofG staff member to establish a Global Health Research Centre in Malawi is under consideration. This stage one application has been submitted in collaboration with partners in Malawi. (Lilongwe University of Agriculture and Natural Resources, University of Malawi, College of Medicine, Malawi University of Science & Technology, Malawi Epidemiology & Intervention Research Unit) If successful all partners will be invited to proceed to the second stage of the application which could mean funding of up to £9 million pounds over 5 years. https://www.nihr.ac.uk/

BEIT Trust The grant holder is in continuing discussions with Beit Trust to extend the current BEIT/Glasgow Studentship agreement and increase the number of MSc students from Malawi studying at UofG each year. The grant holder recently served on the Malawi Beit 2021 selection panel; we expect another cohort of Malawian students to join UofG in September 2021. A WhatsApp group of previous/present Beit students has been set up with the aim of fostering a network of Glasgow trained students who will be Africa's future science leaders and global health professionals. https://beittrust.org.uk/

UofG Governance & Knowledge transfer

UofG through its Glasgow Centre for International Development (GCID) over the last year has organised internal online courses in due diligence/subcontracts payments /ODA compliance. These training sessions in UofG policies and practice were extended to partners at COM and MEIRU. As administrative and support teams in Scotland & Malawi work much more closely together it is good practice that Malawian partners gain an insight into internal UofG workings and good governance.

Wellcome Trust: A funding application by the Wellcome Centre for Integrative Parasitology (WCIP) for two more years of funding was successful and will support the Blantyre Blantyre Glasgow administrators post for the next two years. The funding will also provide for more equipment and staff to be based at the Blantyre Blantyre lab. Also included in the application was an allocation of funds to offset the Blantytre Blantyre labs carbon footprint. We intend to collaborate with Ripple Africa and provide funds to support their fuel efficient cookstove project in Malawi. https://rippleafrica.org/business-carbon-offsetting/

Wellcome Centre for Integrative Parasitology (WCIP) as part of its Public Engagement programme is providing funding of £5,500 to a local theatre community engagement group in

Blantyre. Supporting COVID community engagement work and through the PATH COVID19 vaccine formation study we aim to dispel rumours and fears surrounding the use of the vaccine in Malawi. Using radio/Whatsapp/video the project seeks to promote good health care practices in relation to COVID19. Coordinated by a WCIP principal investigator this outreach project will also inform future public engagement activities. https://www.gla.ac.uk/researchinstitutes/iii/wcip/publicengagement/

Global Challenges Research Fund: In the recent application funding round as well as the solar power funding the grant holder provided support and guidance for many additional applications. See list below of other successful applications that will benefit Malawi directly

Project Title	Countries	Amount Awarded
Kitchen Life: Towards Clean Cooking Services in Bangladesh and Malawi	Bangladesh, Malawi	£74,176.00
Sustainable solar energy for the Blantyre-Blantyre Clinical Research Facility, College of Medicine, Malawi	Malawi	£63,500.00
Blantyre – Glasgow study course in Tropical Medicine and Hygiene Partnership	Malawi	£40,000.00
Understanding Refugee Re-location in Malawi the context of Covid-19	Malawi	£31,396.00
Immunological outcomes to SARS-Cov2 infection: A Blantyre-Blantyre "real-world" comparison	Malawi	£74,878.00
Sustainability and Equity through infrastructure: Sustainable Futures in Africa network's development & digital capacity	Uganda, Malawi, Nigeria, Botswana, Eswatini Total	£74,970.00 £358.920.00

UofG computer donation to COM:

A sea container shipment of 25 refurbished computers from UofG is scheduled to arrive at COM very soon. The shipment was delayed due to COVID19 lockdown restrictions, the computers will form part of a new student computer cluster planned at COM.

Fundraising: UofG staff in their spare time continue to support many institutions & charities in Malawi. Recently in collaboration with a private Glasgow donor they were able to fund the cost of bed nets for all patients returning home from the Queen Elizabeth Hospital children's ward at the Blantyre Malaria Project this year. Also, as part of the sea container shipment mentioned above, we have shipped a large consignment of toys donated by the Glasgow Clan, Ice Hockey Team supporters to Blantyre. These are destined for the children's wards at the Blantyre Malaria Project (Michigan State University) and the Queen Elizabeth Hospital in Blantyre.

The grant holder as a board member of the St Andrews Clinics for Children organisation is working to set up a new clinic in Malawi. We are hopeful that

with an award from a private donor this clinic will also be fully powered by solar energy. This initiative is ongoing. https://www.standrewsclinics.org.uk/

Press/PR: UofG staff continue to harness all traditional media and social media platforms to publicise the Blantyre Blantyre project and associated initiatives. In readiness for the official launch of the lab dedicated web pages have been set up.

https://www.gla.ac.uk/researchinstitutes/iii/wcip/blantyreblantyreresearchfacility/

Malawi Glasgow Network for Interdisciplinary Collaboration (MAGNETIC)

With an increasing number of collaborations and interactions with Malawi. This network has been set up by a UofG staff member to ensure consistency of engagement to establish a coherent framework aimed at enhancing all interactions for both Malawian & Scottish partners. The overall aim of the network is to make lasting impacts on Malawian health and wellbeing by forming long term partnerships. MAGNETIC launched its website last month: https://www.gla.ac.uk/researchinstitutes/iii/magnetic/