REPUTATIONAL IMPACTS OF INTERNATIONAL RESEARCH AND INNOVATION

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5.3. UK International development funding programmes

The UK generates a strong reputation for collaborative R&I through its international developmental funding programmes. International developmental programmes enable the UK to build reputation as a leader and an influencer of international R&I collaboration, technology, and innovation that drive technological advancements to address global challenges. Especially, the UK's commitment to addressing the challenges of emerging and developing nations enables the UK to develop reputation as a nation committed to global prosperity and a leader in directing the international funding landscape, policy, and practice. The impacts generated from the UK's reputation as a global leader in international research and innovation are rooted in its strategic approach to leveraging strengths in science and innovation, fostering academic links, developing expertise in global challenges, strengthening soft power and diplomacy, and ensuring sustainable engagement through equitable partnerships. These activities underpin the UK's influential role in directing international funding and collaborating across borders to address complex global challenges and promote socio-economic development worldwide. The reputation generated by engaging in international developmental funding programmes generates financial, relational, resources, research, innovation, political, social, and environmental impacts [Figure 5.3].

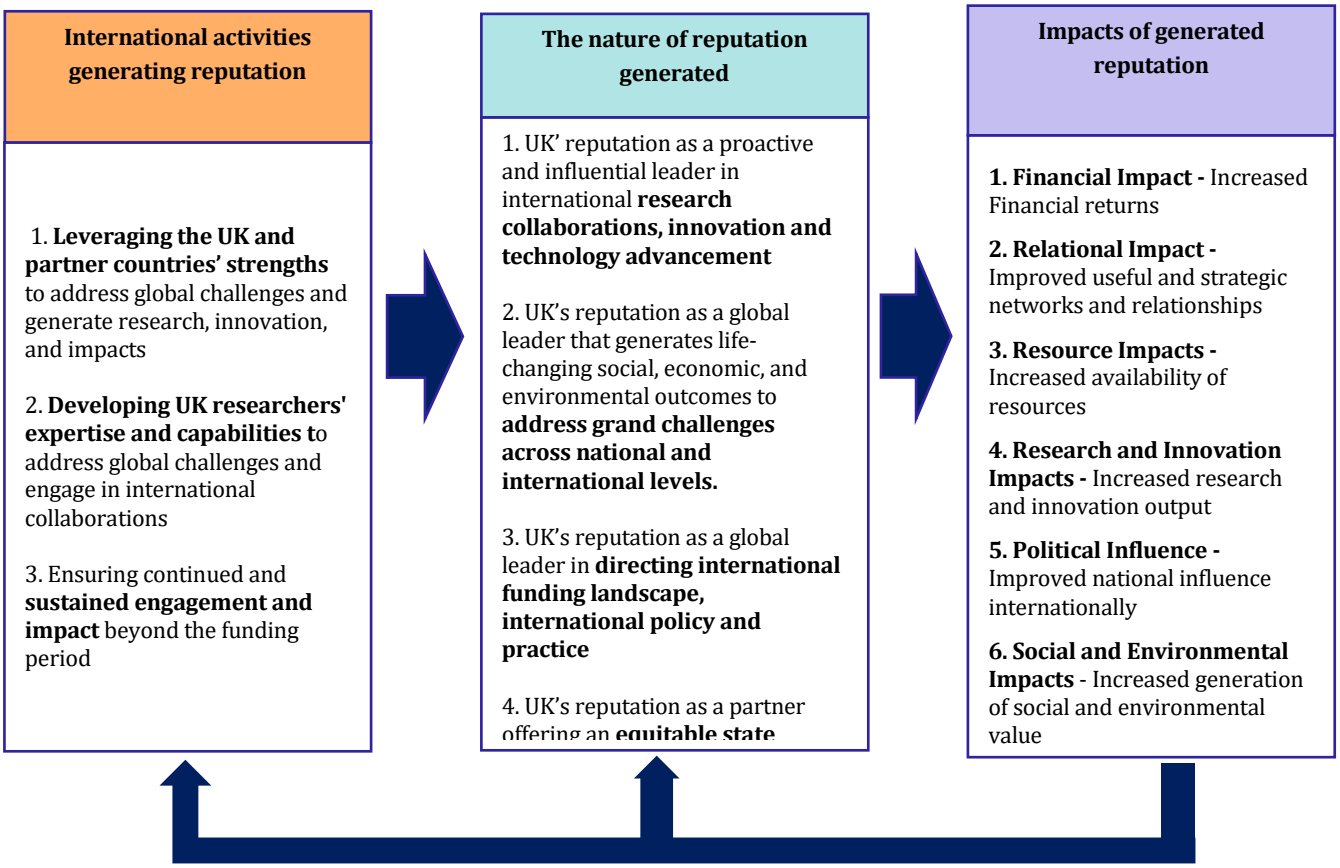

Figure 5.3: UK International development funding programmes generating reputational impacts

5.3.1 International activities

Leveraging the UK and partner countries' strengths to address global challenges and generate research, innovation, and impacts

The UK's international development programmes such as the Newton Fund effectively utilized the UK's strong science and innovation ecosystem to establish partnerships with emerging research leaders globally. This initiative not only showcases UK research excellence but also promotes knowledge sharing and capacity building in partner countries.

Between 2014 and 2021, the Newton Fund supported bilateral science partnerships with 16 developing countries across Africa, Asia, and Latin America, with a budget of £735 million. The UK researchers have been able to collaborate closely with partners in countries like Brazil and India, through projects funded by the Newton Fund, focusing on critical issues such as public health and sustainable development. In countries like the Philippines and Jordan, the Newton Fund facilitated systematic collaboration and cultural bridging, laying the groundwork for deeper and more efficient joint efforts. This framework proved instrumental in transforming existing links into platforms for broader scientific cooperation. International development funding, which focuses on the needs of developing countries, thus fosters the UK's standing

and political influence in the globe as well as offers invaluable opportunities for UK researchers to capitalize on the strengths of the UK and international partners for the advancements in R&I and associated impacts.

Initiatives under the Global Challenges Research Fund (GCRF) and Newton Fund focus on fostering deep academic collaborations that yield impactful research outputs. By tapping into partner country expertise, these collaborations aim to address complex global challenges through interdisciplinary approaches. Collaborative projects on climate change adaptation funded through GCRF have integrated UK climate science with local knowledge systems in countries like Bangladesh and Kenya. This approach not only enhances research outcomes but also builds resilient partnerships capable of addressing shared environmental challenges. Such funds thus result in showcasing the UK's commitment to collaboratively address global challenges by integrating the unique strengths of partner countries with that of the UK. The Newton Fund and GCRF emphasize equitable partnerships and joint ownership of priorities, that foster trust and cooperation between UK institutions and their counterparts in partner countries. This approach fosters a sense of co-ownership and enhances the UK's reputation as a trustworthy and collaborative research partner. In the Philippines, stakeholders noted that the UK's approach to the Newton Fund stood out by establishing genuine partnerships, unlike common practices in the country. Funding for Global Collaborations such as initiatives like the £337 million International Science Partnerships Fund (ISPF) provides UK researchers with access to global talent and large-scale facilities, reinforcing the UK's reputation in supporting large-scale research.

Developing UK researchers' expertise and capabilities to address global challenges and engage in international collaborations

There are different schemes introduced by the UKRI that enable the development of UK researchers' expertise and capabilities to address global challenges and engage in international collaborations. For instance, AHRC's and ESRC's International Placement Scheme, funds eligible PhD students and early career researchers to complete a research fellowship at an international institution in US or Japan for 2 to 6 months.

UK researchers gain firsthand experience working on research projects in regions like Southeast Asia and Latin America. The AHRC's support for these international placements and collaborative research initiatives aims to develop the skills and capabilities of UK scientists necessary to effectively engage in global challenges. This includes developing expertise in global challenge topics and fostering cultural competence.

The Newton Fund's bilateral science partnerships with 16 developing countries across Africa, Asia, and Latin America supported the mobilisation of UK science and research expertise to work with partner countries. Additionally, the Newton Fund initiatives played a crucial role in capacity building and skill development among UK researchers. This includes fostering the capability to navigate diverse cultural settings and engage in collaborative research that addresses pressing global issues, which is important to strengthen international research networks, and foster long-term partnerships and mutual understanding.

Ensuring continued and sustained engagement and impact beyond the funding period

Beyond the initial funding phase, initiatives supported by the Newton Fund and GCRF aim to sustain long-term partnerships and maximize their impact on global research and innovation. This involves nurturing relationships and exploring avenues for ongoing collaboration. Additionally, during the funding period, the exploration and adoption of long-term and sustainable models are encouraged. Projects initiated through the Newton Fund have transitioned into sustainable partnerships that continue to produce research outputs and influence policy decisions. For instance, collaborations in healthcare innovation have led to the development of new medical technologies, benefiting both UK industries and partner countries' healthcare systems.

5.3.2 The nature of the generated reputation

UK's reputation as a proactive and influential leader in international research collaborations, innovation, and technology advancement

By leveraging the UK's robust science and innovation ecosystem, the Newton Fund has built relationships with emerging research leaders globally, positioning the UK as a proactive and influential leader in international research collaborations, innovation, and technology advancement. The fund has facilitated the production of high-quality research outputs and tapped into partner country expertise, enhancing the reputation of the UK as an R&I influencer. This proactive approach demonstrates the UK's commitment to fostering international cooperation and advancing the global research and innovation agenda.

UK's reputation as a global leader generating life-changing social, economic, and environmental outcomes

The UK's emphasis on impactful research has solidified its reputation as a global leader in generating significant social, economic, and environmental benefits. For instance, through the Newton Fund, the UK has enhanced researchers' expertise in global challenge topics and

influenced policy and practice in partner countries, making substantial contributions to sustainable development goals and societal well-being. Newton Fund has also built the capacity to commercialize innovations and develop solutions to address socio-economic challenges in partner countries. These contributions have enhanced the UK's reputation as a global leader in generating life-changing social, economic, and environmental outcomes.

The UK's reputation as a global leader in directing the international funding landscape, policy, and practice

Due to its involvement in international development grants, the UK is recognized globally for its leadership in directing international funding and fostering cross-country collaboration, supporting strategic investments that promote economic development, sustainable practices, and social welfare in partner countries. For instance, the Global Challenges Research Fund (GCRF), supports cutting-edge research to address the challenges faced by developing countries, and funds international collaboration, which enhances the UK's ability to build new, and strengthen existing global partnerships.

Newton Fund-supported activities have shown early signs of influencing policy and practice in partner countries. For example, in China, research funded under the Newton Fund on antimicrobial resistance contributed to a government decision to ban the use of colistin as a food additive in the agricultural industry. This demonstrates the impactful outcomes of UK-led research collaborations in influencing regulatory policies at an international level. In India, for instance, the development of the CRADLE maternal care vital signs alert device, supported by Newton Fund research, has potentially influenced routine maternal healthcare practices across several countries. This innovation highlights the direct impact of UK-led research on improving healthcare outcomes globally.

While many Newton Fund projects are still in the early stages of dissemination and uptake, there are promising signs of their influence at policy and practice levels. Projects in India, Chile, and China have demonstrated how UK-led research can catalyze significant changes in healthcare practices, regulatory frameworks, and educational strategies, illustrating the lasting impact of these collaborative efforts beyond their initial phases.

Newton Fund's positive impact on government and diplomatic relationships, emphasizing its role as a significant source of 'soft power' for the UK. It has successfully helped establish new relationships in regions where ties were limited, such as Southeast Asia, and strengthened existing partnerships, like those with Brazil. Stakeholders noted that the Newton Fund positioned the UK favourably as a science and innovation partner of choice. For instance, initiatives in Kenya facilitated engagement with policymakers through bilateral Science Boards, enhancing

diplomatic ties and facilitating broader international collaboration and perceptions of the UK as a global R&I collaborator.

UK's reputation as a partner offering an equitable state

The Newton Fund and GCRF emphasize equitable partnerships and joint ownership of priorities, that foster trust and cooperation between UK institutions and their counterparts in partner countries. This approach fosters a sense of co-ownership and enhances the UK's reputation as a trustworthy and collaborative research partner. In the Philippines, stakeholders noted that the UK's approach to the Newton Fund stood out by establishing genuine equitable partnerships, unlike common practices in the country. This proactive stance was believed to give the UK a reputational advantage over international competitors in gaining attention and fostering deeper equitable collaborations.

5.3.4 The impacts generated by reputation

Table 5.3: Impacts of reputation generated through UK International development funding programmes

Types of Impact	Specific Impacts
1. **Financial Impact** - Increased Financial returns	Enhanced business developmental opportunities for businesses of all sizes
2. **Relational Impact** - Improved useful and strategic networks and relationships	Strategic and successful country-level partnerships
3. **Resource Impacts** - Increased availability of resources	Improved access to resources, large infrastructure, knowledge, funding, foreign investment, expertise, and networks
4. **Research and Innovation Impacts** - Increased research and innovation output	Improved international collaboration among countries leading to academic, economic, social, and environmental value creation
5. **Political Influence** - Improved national influence internationally	Enhanced opportunities to influence global and national policy, funding landscape, and practice
6. **Social and Environmental Impacts** - Increased generation of social and environmental value	Enhanced opportunities to simultaneously generate business, academic, social, and/or environmental value

Case Study: Efficiency NUE management: UK & Brazil project funded by Newton Fund

The NUCLEUS project, funded by the Newton Fund, aimed to enhance Nitrogen Use Efficiency (NUE) in agricultural systems through an interdisciplinary approach involving 12 institutions from the UK and Brazil.

International R&I activities:

The project, led by the University of Nottingham and São Paulo State University, aimed to address nitrogen loss from synthetic fertilizers, which impacts productivity and the environment. By integrating soil-plant systems, it sought to improve nitrogen use efficiency (NUE), reduce pollution, and support sustainable food production. Over 30 scientists from various fields participated, producing research publications with recommendations for different agricultural contexts.

Built on prior collaborations and supported by the Newton Fund, the project showcased the UK's leadership in international research. It included the development of a nitrogen sensor by Bangor University and the John Innes Institute, and engagement with Brazilian expertise in crop sensors and drone techniques.

Field days and demonstrations in Brazil attracted local engagement and presentations at international conferences. The project involved training early-career researchers and students, fostering future scientific leaders. It also established lasting relationships, leading to further collaborations and exchanges.

The collaboration enhanced academic ties between UK and Brazilian institutions, resulting in Memorandums of Understanding (MoUs) and student exchanges. UK researchers gained exposure to advanced Brazilian agricultural practices, improving understanding of global agricultural systems.

Success in securing follow-on funding through the Newton Fund Impact Scheme highlighted the project's value. The collaboration opened doors for UK institutions to participate in other international research initiatives.

The project's practical recommendations and technological innovations influenced agricultural practices, particularly in Brazil, demonstrating the UK's commitment to addressing environmental challenges through applied research.

The nature of reputational impacts generated:

The UK's ability to lead complex, interdisciplinary projects was solidified, showcasing its strengths in project management, scientific innovation, and international collaboration. The project highlighted the UK's collaborative approach, integrating local expertise and fostering mutual benefits. The engagement with Brazilian agricultural practices and innovations demonstrated the UK's openness to learning and adopting global best practices.

The focus on improving NUE and reducing environmental pollution underscored the UK's dedication to sustainable agricultural practices and environmental conservation. The involvement of numerous early-career researchers and students from both countries emphasized the UK's role in nurturing future scientific talent and fostering an international academic community.

In conclusion, the NUCLEUS project significantly enhanced the reputation of the UK's research and innovation sector by demonstrating leadership in international collaboration, fostering technological and scientific advancements, and committing to sustainable agricultural practices. This reputation not only strengthened academic networks and increased research capabilities but also positioned the UK as a key player in global efforts to address environmental and food security challenges.

Source: UK Secondary Benefits Study The Newton Fund (2022)

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About the Innovation and Research Caucus

The IRC supports the use of robust evidence and insights in UKRI's strategies and investments, as well as undertaking a co-produced programme of research. Our members are leading academics from across the social sciences, other disciplines and sectors, who are engaged in different aspects of innovation and research system. We connect academic experts, UKRI, IUK and the ESRC, by providing research insights to inform policy and practice. Professor Tim Vorley and Professor Stephen Roper are Co-Directors. The IRC is funded by UKRI via the ESRC and IUK, grant number ES/X010759/1. The support of the funders is acknowledged. The views expressed in this piece are those of the authors and do not necessarily represent those of the funders.

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