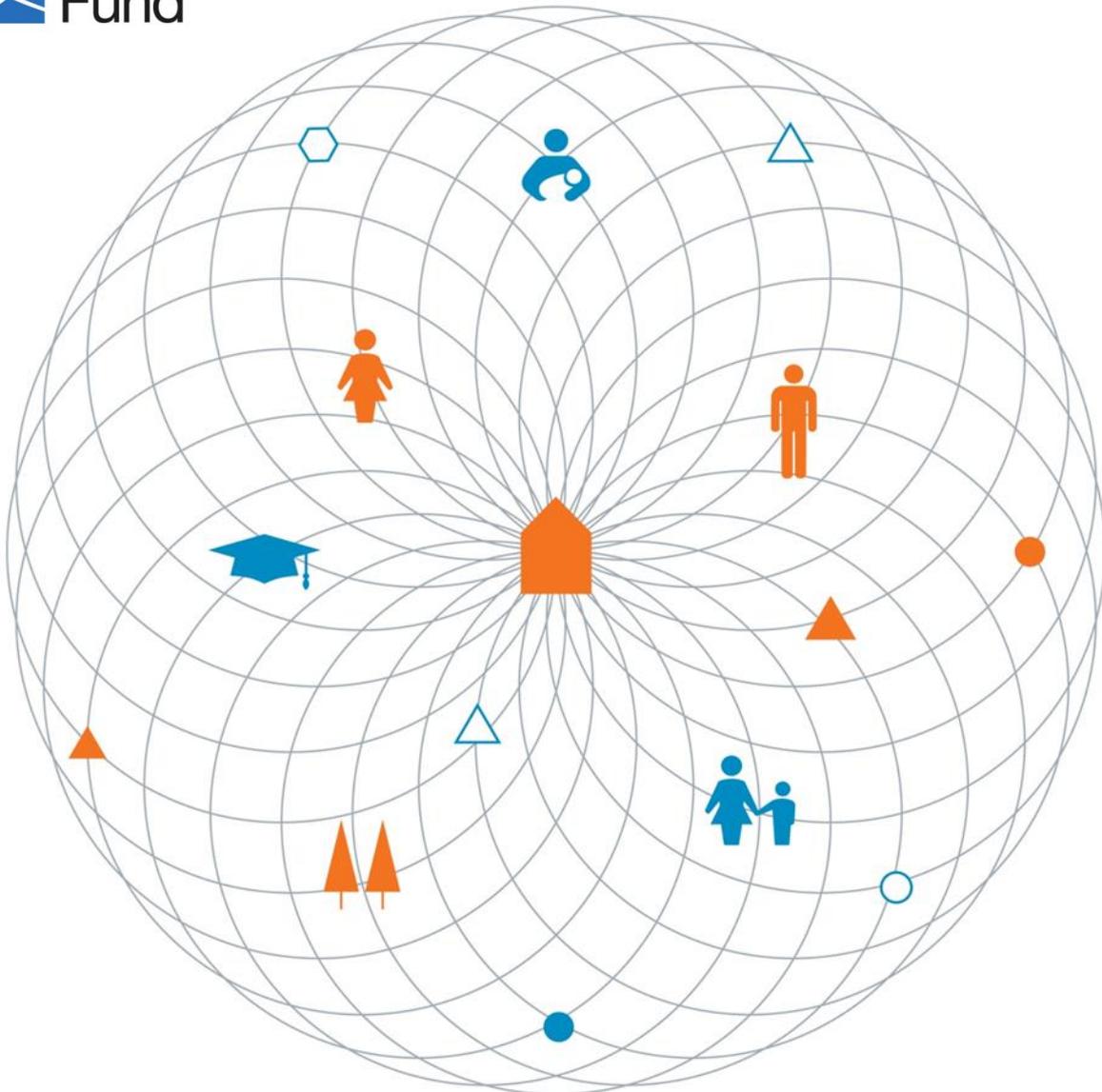


# Thematic Impact Study Report – Philippines

Newton Fund Evaluation  
May 2018



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Newton Fund Evaluation

Department of Business, Energy and Industrial Strategy (BEIS)

Newton Fund Evaluation

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Jamie Fotheringham, Project Director



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# GLOSSARY

<b>AANR</b>	Agriculture, Aquatic and Natural Resources Sector
<b>ADB</b>	Asian Development Bank
<b>AIM</b>	Asian Institute of Management
<b>APMEN</b>	Asia Pacific Malaria Elimination Network
<b>ASEAN</b>	Association of Southeast Asian Nations
<b>BBSRC</b>	Biotechnology and Biological Sciences Research Council
<b>BEIS</b>	Department for Business, Energy and Industrial Strategy
<b>CHED</b>	Commission on Higher Education
<b>DA</b>	Department of Agriculture
<b>DA BAR</b>	Department of Agriculture- Bureau of Agricultural Research
<b>DBM</b>	Department of Budget and Management
<b>DOH</b>	Department of Health
<b>DOST</b>	Department of Science and Technology
<b>DOST PAGASA</b>	DOST Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD)
<b>DOST PCHRD</b>	DOST Philippine Council for Health Research and Development
<b>DOST PCIEERD</b>	DOST Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD)
<b>DP</b>	Delivery Partner
<b>DRR CCA</b>	Disaster Risk Reduction and Climate Change Adaption
<b>DSWD</b>	Department for Social Welfare and Development
<b>DTI</b>	Department of Trade and Industry
<b>EnRich</b>	Enhanced Rice quality for Health
<b>ENSURE</b>	Enhanced Surveillance for Control and Elimination of Malaria in the Philippines
<b>EU</b>	European Union
<b>FCRI</b>	Field Crop Research Institute (Vietnam)
<b>GCRF</b>	Global Challenges Research Fund
<b>GDP</b>	Gross Domestic Product
<b>GERD</b>	Gross Domestic Expenditure on Research and Development
<b>GPPB</b>	Government Procurement Policy Board
<b>GVA</b>	Gross Value Added
<b>GWA</b>	Genome Wide Association
<b>GWAS</b>	Genome Wide Association Studies
<b>HEI</b>	Higher Education Institutions

## COFFEY

<b>HNRDA</b>	Harmonized National R&D Agenda
<b>IFI</b>	International Funding Institution
<b>IPR</b>	Intellectual Property Rights (IPR) culture,
<b>IRRI</b>	International Rice Research Institute
<b>IT</b>	Information Technology
<b>JICA</b>	Japan International Cooperation Agency
<b>LIF</b>	Leaders in Innovation Fellowship
<b>LSHTM</b>	The London School of Hygiene & Tropical Medicine
<b>MOA</b>	Memorandum of Agreement
<b>MOU</b>	Memorandum of Understanding
<b>MRC</b>	Medical Research Council
<b>NCR</b>	National Capital Region
<b>NERC</b>	Natural Environment Research Council
<b>NIBRA</b>	National Integrated Basic Research Agenda
<b>ODA</b>	Official Development Assistance
<b>PCC</b>	Philippine Carabao Centre
<b>PDP</b>	Philippine Development Plan
<b>PHCRD</b>	Philippine Council for Health Research and Development
<b>PI</b>	Principal Investigator
<b>R&amp;D</b>	Research & Development
<b>RCUK</b>	Research Councils UK
<b>RDT</b>	Rapid Diagnostic Testing
<b>RITM</b>	Research Institute for Tropical Medicine
<b>STEM</b>	Science, Technology, Engineering and Mathematics
<b>STI</b>	Science, Technology and Innovation
<b>TESDA</b>	Technical Education and Skills Development authority
<b>TTO</b>	Technology Transfer Officers
<b>TVET</b>	TECHNICAL-VOCATIONAL EDUCATION AND TRAINING
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organisation
<b>UNSDG</b>	United Nations Sustainable Development Goals
<b>USAID</b>	United States Agency for International Development
<b>USAID-STRIDE</b>	USAID Science, Technology, Research and Innovation for Development
<b>VAAS</b>	Vietnamese Academy of Agricultural Sciences

# 1 Introduction

## 1.1 Purpose of this report

This report presents our findings for our Thematic Study of Newton Fund activities in the Philippines, with a focus on three activities in the country. Our findings emerged from an in-depth review of documentation, in-country interviews, and UK-based consultations, as outlined in [Section 1.2](#). Findings from this and the other seven country studies will help inform our Mid-term Evaluation report.

As outlined in our Evaluation Strategy, thematic impact studies were carried out in eight countries: Brazil, China, Egypt, India, Malaysia, Mexico, the Philippines and South Africa. Concentrating on these countries allows for a breadth of coverage across Newton partner countries and regions of focus. It also allows for broad coverage on terms of the existing innovation capacity and infrastructure of Newton partner countries. In-country research took place in the Philippines in January 2018.

As part of our thematic studies, we conducted a comparative analysis of the factors that contributed to the Fund's outcomes across different contexts (such as type of local funding agencies, size of secondary universities, local research structures, among others). This helped us map the **pathways of change and capture early signs of the Newton Fund's impact**. By focusing on the factors which facilitate specific research activities, increase the quality of research outputs, enhance international collaboration for higher level education and translate research into innovative practices, the thematic impact studies help us understand how sustainable solutions to economic development and poverty reduction have emerged so far from Newton Fund activities.

### Case study selection

For each country, we shortlisted potential case study calls based on three measures: size, pillar and sector. The selection of projects took thematic areas of focus into consideration, aiming to include Newton Fund priority areas in the country. We sought to achieve a spread of Newton Fund Delivery Partners and activity types across the countries in our sample. We also consulted the in-country teams to identify potential impact 'stories'. Following additional consultations with delivery partners and the Newton Fund Central Team, we selected **three cases per country** to be explored in more depth.

In the Philippines, the shortlisted activities were:

- The Royal Academy of Engineering and Philippine Department for Science and Technology (DOST). Leaders in Innovation Fellowship (Rounds 1-4)
- Biotechnology and Biological Sciences Research Council (BBSRC) UK-China-Philippines-Thailand-Vietnam Call for Collaborative Research Proposals in Rice Research. Developing Rice Resources for Resilience to Climate Change & Mitigation of Carbon Emissions
- Medical Research Council (MRC)- DOST Philippine Council for Health Research and Development (PHCRD) joint health call. ENSURE: Enhanced Surveillance for Control and Elimination of Malaria in the Philippines

This allowed for inclusion of two Research pillar actions and one Translation pillar action. Within those actions, the specific award-holders were selected to ensure as broad a geographical scope and diversity of partners as possible, within the short timeframe of the thematic study. When selecting the award holders, we also considered the relevance of the specific project's research area to the Newton Fund's priorities in the Philippines. The selected projects involve researchers and work sites based in a variety of provinces and states, as the ENSURE project covers Palawan, Occidental Mindoro and Bataan, the Rice Resilience project in Nueva Ecija's Science City of Muñoz. The LIF programme includes fellows from higher education institutions from several states, interviews and interaction with these individuals and the ENSURE Team took place in Metro Manila. This wide coverage allowed the research team to include views and experiences of the Newton Fund in very different contexts within the Philippines especially in terms of the different sectors' economic situation and existing international science and innovation linkages.

## 1.2 Research approach

### Research scope

The thematic impact studies involved wide-ranging in-country consultations, with the inclusion of as many diverse interview respondents as possible within the short timeframe of our fieldwork activities. This was combined with consultations with UK-based partners and researchers involved in the actions included in the study.

This thematic study explored:

- The **development of each activity** – examining its origins, how engagement with the Newton Fund occurred, and an overview of the process of securing Newton funding
- The **relevance of each activity** to the Philippines' development needs and to Newton Fund and ODA goals
- The additionality of each activity
- The **results of each activity**: the outputs, outcomes and impacts generated in terms of strengthening the science and knowledge base, innovation capacity and influencing policy in the Philippines and beyond
- The **success factors (and barriers) of each activity**, and examination of possible future benefits from each activity that might be expected to arise in the future.

We took into account that all three of the activities included in this study are still ongoing, and that the impact of projects can often take years or even longer to unfold. Our research approach was adapted to reflect this, and also included signs of impact or intentions to achieve impact as indications of potential future impact.

### Research methods and data collection approach

The thematic impact studies are central to our contribution analysis approach and involved an intensive period of in-country research by members of the evaluation team and local experts in science and innovation. Preparation for the in-country research included a country-specific document review on the Philippines' research and development context. Documents reviewed include the evaluation Philippines Baseline Report, Country Situation Note, and findings from the Process Evaluation. We also conducted a literature review of additional documentation on the Philippines' science and innovation landscape, and existing UK-Philippines collaboration activities. Project-specific documentation, such as application forms, mid-term and final reports were reviewed for each action included in the study, where provided by the delivery partner, local partners or researchers.

The document review was accompanied by **one week of intensive data collection in country**, as well as data collection in the UK prior to and following the fieldwork. During the week long in-country visit, three main categories of stakeholders were interviewed:

- In-country UK delivery partners (and Newton in-country team);
- Funders; and
- Participating researchers. In some cases, researchers from other projects under the same funding call were also interviewed.

Our data collection both in-country and in the UK was complemented with an analysis of the pathway to impact for each action, which can be found in [Annex 2](#). In the analysis, we examined each project's trajectory to impact by placing it within the Newton Fund Theory of Change. This allowed us to visually represent the pathway to outputs, outcomes and impact of each activity, and highlight its (potential) contribution to broader Newton Fund goals.

### Limitations of the research approach

The short timeframe for in-country research meant that we were only able to include three projects within our study. These are not representative of Newton Fund activities as a whole. The short timeframe also limited the number of stakeholders we were able to interview in the Philippines. The volume of documentation provided varied by project, thus limiting the possibility of triangulating findings. The thematic study findings reflect the data provided by each project and what is available online.

Research findings have been triangulated across different stakeholder groups and across various sources of documentation (project documents and online resources such as the RCUK Gateway to Research portal). However, the research team was not able to independently verify statements by all the different contributing stakeholders or to verify what was reported in documentation. Where findings could not be verified we have made this clear in the text.

The need to ensure a sufficient spread of project representation across three pillars and eight countries has meant that it was not possible to include a People Pillar project in the Philippines.

Finally, all three of the projects included were still ongoing at the time of data collection. Therefore, the report focuses on emerging signs of impact for the projects.

## 2 The Context and evolution of the Fund in the Philippines

### 2.1 Philippines context

This report reflects the country situation at the time of the case study visit to the Philippines in January 2018 and its findings were correct at the time of the interviews and report-writing.

The Newton Fund's introduction to the Philippines coincided with an increased policy emphasis on Science and Innovation in recent years. This is apparent in the most recent iteration of the Philippine Development Plan covering 2017 to 2022<sup>1</sup> which outlines government strategy under Rodrigo Duterte's administration. The plan is underpinned by three pillars listed below:

- Enhancing the social fabric (Malasakit)
- Reducing inequality (Pagbabago)
- Increasing growth potential (Patuloy na pag-unlad)

The 'increasing growth potential' pillar includes a drive for the Philippines to **graduate to a knowledge economy** and the **promotion and acceleration of STI in agriculture, industry and service sectors**, which aligns well with Newton Fund priorities (see Figure 1 for more details). The pillar is split into two parts, the first of which is to ensure efficient population management, and the second is to promote science, technology use, and innovation. The strategies related to the latter, which is especially relevant to the Newton Fund, are listed below:

- To increase Science, Technology and Innovation (STI) utilisation in the agricultural, industry and services sectors
- To increase investments in STI-based start-ups, enterprise and spin-offs
- To enhance the creative capacity for knowledge and technology generation, acquisition and adoption
- To strengthen open collaboration among actors in the STI ecosystem (including "Intensifying international cooperation in STI")<sup>2</sup>

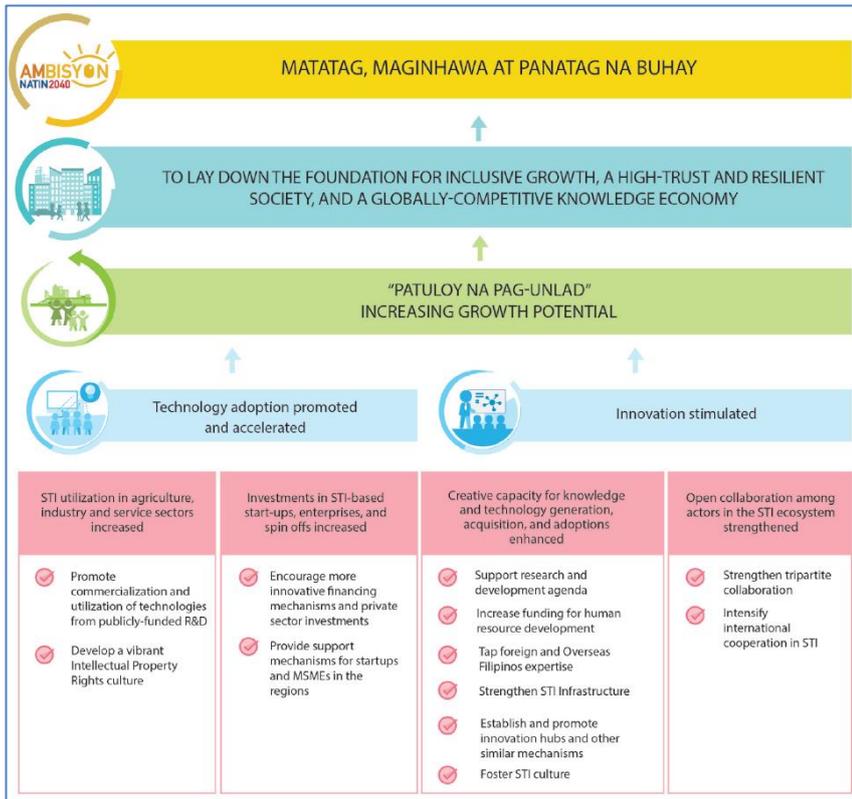
Also relevant to Newton Fund operations in the Philippines is the country's long term 'Ambisyon Natin 2040' vision, which was adopted by the Philippine Government in June 2016. It underpins much of what was contained in the PDP 17-22 and includes a vision statement emphasising a need to create a well-educated population, teaching of foundational skills and competencies in areas such as collaboration, creativity, and initiative as part of a drive to create an innovative, entrepreneurial culture.

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<sup>1</sup> Philippine Development Plan 2017-2022 (PDP 17-22)

<sup>2</sup> PDP Page 225

**Figure 1 Philippine Development Plan: Increasing growth potential**



Source: Philippine Development Plan

**Philippine - UK relations**

The Philippines and the United Kingdom have a close bilateral relationship. According to the British Embassy in Manila’s website, the UK and the Philippines bilateral trade is worth around “US\$2bn annually” and “the UK is one of the largest foreign investors in the Philippines”<sup>3</sup>. Although there has been previous collaboration, fieldwork interviews with officials from the Department of Science and Technology (DOST) revealed that the Newton Fund is the first bilateral co-funding collaboration of its kind between the two countries to focus on STI. In a statement made in October 2017, the Philippine’s Department of Foreign Affairs emphasised that: “the Philippine government is committed to continued engagement with the UK in furthering our longstanding and mutually beneficial partnership”<sup>4</sup>.

**Science and innovation landscape in the Philippines**

DOST provides leadership, central direction, and coordination for all scientific and technological initiatives, policies, and programs to sustain national development. DOST formulates the National Science and Technology Plan, and monitors and coordinates its funding and implementation. This means that DOST delivers the majority of calls in sectors related to other government departments, such as health, where the Department of Health has provided DOST with R&D funding to manage. For example, the joint health call with the Medical Research Council is delivered with DOST PCHRD rather than the Department of Health. Consequently, DOST and its research councils are key delivery partners of Newton Fund projects in several sectors. For projects supported by DOST, funding may either come from the specific research council’s budget or from the general appropriations budget of DOST central office (see more about DOST’s structure under the section below on “Philippine Delivery Partners”). The majority of R&D funding currently comes from the public sector, however there are policies underway to change the STI landscape and include the private sector more. Under the 2017-2022 PDP the government describes strategies to build an

<sup>3</sup> <https://www.gov.uk/world/organisations/british-embassy-manila>

<sup>4</sup> <http://globalnation.inquirer.net/160887/rodriago-duterte-uk-financial-aid-dfa-department-of-foreign-affairs>

investment environment that encourages more private sector participation in start-ups and innovation, such as through 'angel investments', venture capital and crowd-funding for STI-based start-ups or spin-offs. This is to be accompanied by further funding to commercialise R&D programmes that are further along the development process. There are existing programmes with similar aims: '**Small Enterprise Technology Upgrading Programme**' (which aims to support and sustain the growth of the micro, small and medium enterprises) and **The Start-up Ecosystems Development Programme** (which intends to foster start-up culture and innovation for small enterprises).

The 2017-21 PDP also sets out plans to 'establish and promote innovation hubs and other similar mechanisms' in strategic locations, including innovation centres. As part of this the government has announced plans to invest in product development centres and disaster risk reduction facilities, intending that the Philippines becomes the 'global hub for Disaster Risk Reduction and Climate Change Adaption and Mitigation', acting as a platform for sharing technologies and learning best practice.

### HEIs and Industry

The number of peer-reviewed journals per million population currently stands at 55. A 2014 USAID-STRIDE assessment described that most Higher Education Institutions (HEIs) in the Philippines perceive collaboration with companies as outside their core mission. The private sector struggles to collaborate with HEIs and this means that technical assistance for the private sector from research institutions and the government is low. In addition to **developing an Intellectual Property Rights (IPR) culture**, the PDP intends to institutionalise the provision of the Philippine Technology Transfer Act (2009) and to conduct information campaigns for the public stressing IPR's importance.

At present, the limited strategic orientation and coordination between the state, private enterprises and research institutions in innovation strategy could be improved. In late 2017, the Harmonized National R&D Agenda (HNRDA) was released in consultation with DOST, the government, private R&D institutions, Higher Education Institutions, industry and other concerned sectors. It was designed to gear STI towards areas of maximum economic and social benefit for the Philippine population in a manner aligned with government priorities. It set out five areas of national priority to become a globally competitive knowledge economy, several of which are highly relevant to ongoing Newton Agham projects in the country:

- National Integrated Basic Research Agenda (NIBRA)
- Health
- Agriculture, Aquatic and Natural Resources Sector (AANR)
- Industry, Energy and Emerging Technology
- Disaster Risk Reduction and Climate Change Adaption (DRR CCA)

### Performance and R&D Breakdown

Under the 2017-2021 National Development Plan the government has claimed that improving the technological readiness ranking of the country is a key goal, and has made explicit its aim to raise the amount of R&D Expenditure as a proportion of GDP from 0.14% to 0.5% by 2023. Using the most recent available UNESCO data from 2013, a breakdown of gross domestic expenditure on R&D (GERD) is shown in Table 1 overleaf.

**Table 1 Philippine Gross Domestic Expenditure on R&D (GERD)**

Data category	Figure
Number of researchers per million inhabitants (in headcounts)	272.9
Total researchers (in headcounts)	26,625
Percentage of researchers in business enterprise	52%
Percentage of researchers in government	10.9%
Percentage of researchers in higher education	36.4%
Percentage of researchers in Private non-profit	0.7%

UNESCO GERD Data (2013)

Approximately 60% of the Philippines R&D spending is drawn from the public sector<sup>5</sup>, a change from 2007 when approximately 26% of GERD was from the Public Sector and 60% from business enterprise<sup>6</sup>. R&D funding is predominantly used for agricultural and industrial production as well as health and control and care of the environment. The National Capital Region (NCR), Calabarzon and Central Luzon host the majority of this R&D activity.

The Philippines was ranked 73rd among 127 economies in innovation in the 2017 Global Innovation Index report (rising from 83rd out of 141 in 2015 and 74th out of 128 in 2016). Outside of changes to priority areas for spending, the funding structure of government bodies has remained largely unchanged under the new government and in the past decade.

#### International relations / research

The Philippines has close collaborations with the USA and receives considerable amounts of funding from USAID and other US programmes (including the \$32m STRIDE programme which aims to foster economic growth through boosting science and technology research). In November 2017 the Philippine government agreed to a 'Partnership for Growth' with the USA, and was the only Asian country to do so. This partnership was strengthened in 2017 and evolved into the 'Partnership for Growth with Equity', which greater aligned with the three pillars of the PDP 17-227. Also, the Philippines has strong bilateral aid relationships with Japan which was the largest donor of ODA at \$422m in 2015-16 with the USA second at \$272m and the UK 10th (including EU Institutions as a whole a listed donor in addition to its separate donor member countries) accounting for a much smaller \$11m<sup>8</sup>.

Other International Funding Institutions (IFIs) relevant to Newton Fund activities include the Asian Development Bank (ADB) and the Japan International Cooperation Agency (JICA). They have allocated funding for various scholarships, grants, and technical assistance loans to support the government's emphasis on funding training and education in science and technology in the past. For example, The ADB JobStart Project is a technical assistance project that provides exchange programs and scholarships to allow young people to gain skills for employment. In addition, JICA is currently assisting the Department of Education through the Bureau of Curriculum Development on how to reform the K-12 program to minimize the effects of skills mismatch. This is highly relevant to a Newton Fund project conducted by the British Council which has now ended, which designed teaching packs for teachers in schools across the country also targeting the skills mismatch phenomenon. In March 2017, the Thai Ministry of Science and Technology and the DOST signed an MOA agreeing to work in eight areas of STI. The exact details of how this partnership is to be implemented are currently being forged in committee. The key collaboration areas include: medical science; food processing; innovative agriculture; electronics and computer; nanotechnology; space technology; innovative start-up; and metrology. In November 2017, a partnership between the Manila and Taipei

<sup>5</sup> PDP 2017-2022 p. 188

<sup>6</sup> UNESCO <http://uis.unesco.org/en/country/ph?theme=science-technology-and-innovation>

<sup>7</sup> <https://www.usaid.gov/philippines/partnership-growth-pfg>

<sup>8</sup> OECD Aid at a glance data, 2015-16

Economic and Cultural Offices (MECO-TECO) issued a joint research project call for “mutually beneficial and collaborative project proposals” in the following priority areas: artificial intelligence for services; point of care diagnostics for non-communicable diseases; assisted reproduction in livestock; and biotechnology for crop production. The aim of the call was to stimulate cooperation between DOST and Taiwan’s Ministry of Science and Technology.

## 2.2 Overview of Newton Fund activity in the Philippines

### Sector priorities

The Newton Agham (Science) programme aligns well with the country’s new STI policy priorities, especially those emphasising collaboration with international partners. The research and innovation priority areas for Newton Agham are:

- Health and life sciences
- Improving environmental resilience
- Improving energy security
- Future cities
- Agritech
- Digital, innovation and creativity

### Newton Fund Team

Since June 2014 the Newton Fund Team for the Philippines has operated out of the British Embassy and consisted of one Strategic Manager. The team was extended in October 2017 with the introduction of a programme support officer who has a variety of roles, including but not limited to communication strategy and implementation, administrative work, and assisting the Strategic Manager to conduct their duties. The Strategic Manager is responsible for raising awareness about the Newton Fund and the Embassy’s efforts, building and maintaining relations between partners, as well as shaping and creating recommendations for the country’s overall programme. The Newton Fund Team also represents the delivery partners for various stakeholders, for example during meetings between BBSRC and DA BAR.

The in-country team arranged workshops and events to introduce UK partners and Philippine government agencies and encourage collaborations. When relationships were established, the team also facilitated coordination between the Philippines and the UK.

In the UK, counterparts for the Philippines team are the Newton Fund Management Team for overall fund activities and the Department for Business, Energy and Industrial Strategy (BEIS) Lead for South East Asia, Russia, and Central Asia. It is worth noting that the Newton Fund team and interviewees from both the UK and Philippines cited the shared use of the English Language as a strength for working together, as all members of the project had capacity to interact and communicate with team members across national boundaries without dependency on a translator or limiting interactions to smaller numbers of staff. There were nevertheless some problems experienced with coordination between teams. In interviews it was explained that the Newton Agham Team had experienced some difficulties, which includes a changeover in UK Newton staff and challenges in taking on numerous responsibilities. It was also noted that there was limited guidance at the launch of the Newton Fund in terms of protocol for collaboration and project implementation, although the team was able to work through using learned best practice based on their experiences while protocols and structures were being put into place.

The Singapore regional hub has a coordinating function for the Newton Fund in South East Asia, including the Philippines. The hub supports with staffing/recruitment for the Newton Fund, coordinating and providing regional management in the same time zone, and branding the Newton Fund in a central location. The hub enhances direct collaboration between partner countries in the region. The role and function of the hub was not a focus for this thematic evaluation.

### Philippine Delivery Partners

Philippine Delivery partners are involved in several projects at once and many are governmental departments or departmental councils, which are dedicated councils sitting within departments focusing upon specific policy areas and sectoral projects (i.e. DOST Philippine Council for Agriculture, Aquatic and Natural Resources R&D). Several sectoral planning councils under DOST conduct the majority of everyday coordination and planning for their relevant Newton projects, whereas the higher Departmental staff are involved in commissioning and support. DOST is involved in the most projects, either at a departmental level through the one of its three Sectoral Planning Councils or Science and Technology service institutes. Outside of DOST, the main Filipino government bodies involved in Newton Fund Projects are the Department of Agriculture and the Commission on Higher Education. However, with the exception of those involved in PhilRice, staff from these departments were not interviewed as part of this report.

The DOST Undersecretary for R&D has sight of all DOST's Newton projects and is in frequent contact with the Newton Agham Team. The Undersecretary also approves which Newton Fund activities DOST becomes involved in. The Undersecretary oversees the Sectoral Planning Councils who are generally responsible for formulating policies, programs and strategies for science and technology (S&T) development in their sector as well as funding allocations. The councils involved in Newton Projects are:

- DOST Philippine Council for Agriculture, Aquatic and Natural Resources R&D (DOST PCAARRD)
- DOST Philippine Council for Health R&D (DOST PCHRD)
- DOST Philippine Council for Industry, Energy and Emerging Technology R&D (DOST PCIEERD)

Some of Newton's (and other projects') research funding comes from these councils, and the remainder comes from the general appropriations budget of DOST. The various DOST councils review the proposals and make recommendations as to whether they qualify for funding. A larger committee including the DOST Undersecretary then makes the decision whether or not to approve the recommendations. All research councils work in line with the R&D agenda of the PDP 17-22, and therefore approved DOST Newton Projects are well aligned to national priorities due to the application process.

During fieldwork interviews, DOST representatives explained that the Newton Fund has provided assistance to departmental objectives by increasing the capacity of scientists for R&D which is aligned with the department's aim. In addition, the Newton Fund was praised for providing a different model that makes DOST a partner with equal responsibility in international collaboration, allowing the Newton Fund's objectives to be adapted to Philippines' needs in a unique way when implementing programmes.

Involvement in the Newton Fund has led to the creation of new collaborative projects with the UK, and the expansion of existing ones. An example of the latter is the Weather and Climate Science for Service Partnership (WCSSP) project between the UK Met Office and DOST-PAGASA which aims to build capability in forecasting systems and help reduce disaster risk. A memorandum of understanding (MOU) for three years has been agreed between DOST-PAGASA and the UK Met Office for this project.

### UK Delivery Partners

Several UK delivery partners are also involved in multiple Newton Fund projects in the Philippines. The British Council is participating in six of the fourteen projects being supported through the Newton Agham programme. British Council staff overseeing these projects who were interviewed during fieldwork stated that the aims of the Newton Fund were parallel to the educational and cultural aims of the British Council, which includes work on scientific research, institutional relations, and technological innovations. Moreover, the British Council also stated that the Newton Fund progressed these interests in furthering academic linkages with the help of the Commission on Higher Education (CHED) and the Department of Science and Technology (DOST). British Council staff members also explained that the Newton Fund had increased the British Council's role in forging relations among Philippine and UK universities including government agencies. This includes the collaboration with CHED on its STEM Newton project that embarked on another non-Newton collaboration, introducing assessed teaching guides and creation of a teacher training toolkit both used nationwide by science teachers; and Newton's role as gateway to the advent of British Council's project on Transnational Education, having started with 10 universities originally tapped as the Newton's network.

The Research Councils are involved across five projects, including RCUK itself, the Medical Research Council (MRC), Biotechnology and Biological Sciences Research Council and the Natural Environment Research Council (NERC). The Royal Academy of Engineering, Innovate UK and the Met Office are all also involved in one project each.

### Newton Fund experiences to date

Several stakeholders who were interviewed during fieldwork explained that the Newton Fund model and several of its projects have led to changes in how their organisation operates or will likely be used as best practice in the future. Largely based on their experiences of the Newton Fund, a previous Newton grantee was able to develop a new science training programme outside of Newton funding imitating the cost-sharing model used by the Newton Fund. The DOST has commended this model, stating that the scheme creates equal decision-making opportunities between the government and private funding. In addition, participants in the Leaders in Innovation Fellowship programme (described in more detail in later in this report) claimed that participation in the Newton Fund scheme had led to changes in one university's policy, as one past-fellow had academic leave introduced for academics who were developing or commercialising innovative projects at their institution.

A common theme in fieldwork interviews was that the Newton Fund had allowed for exposure and co-operation at the international level, not just with the UK but with other Newton Fund partner countries, especially those from the Asia Pacific Region. Philippines Newton Team members explained that there was frequent communication between the Strategic Managers of the Fund in each of the Asia Pacific partner countries. In addition, several fellows involved in the LIF programme said they had benefited from exposure to fellows from other partner countries (especially during the UK Visits). PhilRice project members also cited introductions to teams in Vietnam as a benefit of fund participation. In addition, during the fieldwork's summary workshop, which included a number of Newton Fund stakeholders, several attendees noted that interaction between partners at the local Fund level (i.e. from different funded projects) was also beneficial.

During interviews with UK and Filipino stakeholders, individuals were asked about difficulties encountered in implementing the Newton Fund, and methods through which these issues may have been overcome or suggestions for the future. A common theme from several stakeholders was the difference in funding systems processes and timelines between the two countries, which had led to difficulties in fund release. The UK and the Philippines use different fiscal cycles, and in the UK it is common for grant funding for projects over several years to be pre-approved at project start. In the Philippines there are regular reviews for the next batch of funding to be released. In addition, according to some stakeholders, some of the programmes which have students study abroad are affected by a Philippine rule that requires two years of government service for every one year of foreign study, which may limit its attractiveness (compared to other countries where there is no such requirement).

Although Newton Fund activities are planned in consultation with Philippine government partners, and have always included their input on priorities and interest, a small number of Philippine stakeholders suggested that increased engagement and discussion in government and in academia would be beneficial, as this could allow for greater clarity on requirements and interests from Philippine partners at earlier project stages. The decision-making process of the Fund was described as 'top down' by one contributor to the final workshop of the in-country visit. Similarly, some government department staff noted that having more autonomy and ownership over the nature of projects which were conducted as part of the fund would also be beneficial. Although UK and in-country Philippine partners need to agree on the final scope and remit of activities, those that have been taken forward to date were primarily suggested and directed by UK partners. At the time of the fieldwork visit, all the implemented activities have been proposed by the UK, and if in future Philippine-proposed activities were taken forward that may work to change these perceptions.

In terms of maintaining the success of the fund, during fieldwork workshop sessions several stakeholders expressed a desire to form a 'community of practice', to be managed by the Newton Agham Team, to continue shared learning and experiences of projects in the Philippines and ensure that new collaborations and learning is made sustainable.

## 3 The Leaders in Innovation Fellowship programme

### 3.1 Summary

Action title	Leaders in Innovation Fellowship (LIF)
Short description	The LIF programme is aimed at researchers and technology transfer officers within the Philippines (and several other Newton partner countries) who are at the point of developing a business proposition for an innovation. The programme in the Philippines has three stages. The launch programme involves training at the Asian Institute of Management, including a workshop on pitching. This is followed by a two-week residential programme in the UK, where cohorts of fellows from the Philippines and other partner countries benefit from a focussed period of training in entrepreneurship as well as time and access to expert UK Coaches. Fellows are also helped to develop pitch presentations and executive summaries of their business plans. The final 'landing programme' stage commences after fellows return to the Philippines, where they continue to receive remote coaching support from the UK over six months, including a follow-on programme at the Asian Institute of Management in Manila. The Royal Academy of Engineering also provides follow-on activities and mentoring alongside the 'landing programme'.
Objective(s)	The primary objective of the LIF programme is to build the capacity of participants for entrepreneurship and commercialisation of their research. In doing so, the LIF programme helps scientists and engineers enhance their entrepreneurial capacity through: 1) appreciation of the impact of the fellows' products to people's lives, 2) providing focused training on entrepreneurship, innovation leadership and commercialisation which supports pushing their research-based innovation to the market. These innovations are also tied to Newton Agham and Philippine development priority areas, as projects must show alignment during the application process.
Pillar	Translation
Action value (total budget allocated in country, in GBP)	Total 2015-17: £544,841 <sup>9</sup> (£329,300 UK, £215,541 Philippines)
Start / end date (Status: on-going or complete)	01/02/2015 - ongoing
DP UK and overseas	The Department of Science and Technology (The Philippines). Royal Academy of Engineering (UK).

<sup>9</sup> Using the 26<sup>th</sup> March 2018 exchange rate of 74.23 Philippine Peso to the pound

Award holders / grantee	Various researchers and technology transfer officers.
Implementers	The Asian Institute of Management, Oxentia (UK).

### 3.2 Description of the action

The primary aim of the LIF programme is to improve the capacity of participants for entrepreneurship and application/commercialisation of their research. The LIF programme helps scientists and engineers enhance their entrepreneurial capacity through: 1) increased appreciation and awareness of the impact of the fellows' products to people's lives and 2) focused training on entrepreneurship, innovation leadership and commercialisation to help push their research-based innovation to the market. The LIF Programme is a Newton initiative taking place in several partner countries, namely: the Philippines; Mexico; Chile; Brazil; Egypt; South Africa; Turkey; Colombia; Vietnam; Thailand; China; and India. The Philippines has been part of the programme since its launch (with others such as Malaysia joining in later rounds) and is currently in its fourth cycle of students.

There are two types of participants in the programme, Research Fellows (who make up the majority of participants) and Technology Transfer Officers (TTOs). TTO's have the additional role of assisting researchers in selling and promoting their technologies and assisting their institution with the commercialisation of innovative R&D outputs or initiatives upon completion of the programme. Some TTOs spoken to during fieldwork described their job as helping and motivating fellows to "go beyond their function as a scientist". Research Fellows and TTOs apply to the programme with a project which most will focus on for its duration, although some interviewees stated they had changed project focus during the UK trip. These projects are at the point of business proposition and are developed through the three stages of the programme.

Within the Philippines, the LIF is split into three stages. The first stage of the programme, the Launch Stage, involves a rapid three-day session which familiarises fellows, through a 'crash course', with pitching and business model creation at the Asian Institute of Management (AIM). The second stage involves a two-week placement at a UK partner institution (arranged through the Royal Academy of Engineering) where workshops take place and fellows and TTOs are introduced to UK coaches and mentors who are strong in their field of expertise. These coaches are coordinated and managed by Oxentia and come from a variety of fields. An indication of the type of training provided to the fellows during the second stage residential programme is highlighted in the timetable in Figure 2. The third stage is a 6 month 'landing programme' at the AIM to further develop projects and fellows' skills building upon the UK visit. During this third stage, the Royal Academy of Engineers also provides follow-up sessions and mentoring such as masterclasses. At the time of writing the fourth batch of Philippine LIF Fellows have just completed the second stage of the programme.

**Figure 2 LIF UK residential overview**

<u>Week 1</u>				
Monday	Tuesday	Wednesday	Thursday	Friday
Welcome, ice breaking session, and initial pitching	Business Modelling	Trip to London catapult / Industry partner	Presentation and communication skills	Peer to peer learning
Lunch	Lunch	Lunch / Marketing Module	Lunch	Lunch
Enabling environments for innovation and entrepreneurship	Business Modelling	Group Coaching sessions	Customised Case Study Workshop	Peer to peer learning
Cohort networking		Group Dinner with Trainers and Coaches	Masterclass and networking reception	
<u>Week 2</u>				
Monday	Tuesday	Wednesday	Thursday	Friday
Operations and leadership	Group Coaching sessions	IP and regulation Thematic workshops	Advanced pitching and communication skills	Pitch rehearsals with coaches
Lunch	Lunch	Lunch	Lunch	Lunch
Finance	Group Coaching sessions	Negotiation training	Group Coaching sessions	Final Pitch Day
	Optional Coaches dinner with Fellows		Optional Coaches dinner with Fellows	

Source: LIF Year 3 report

A different DOST sectoral council has administered the LIF programme across years, and each has had a slightly different approach to advertising the programme and the nature of projects or individuals they focus on. For example, the third batch, managed by DOST PCAARRD, focused more on agricultural projects and attracting state universities and colleges for applications, according to interviews with council staff. The funding amounts declared at the start of the programme for each year (which was agreed at project launch) are expanded upon in the table below. 2018 figures were not available at the time of writing.

**Table 2 LIF Funding yearly breakdown**

Funder country	2015	2016	2017
UK	£80,000 <sup>10</sup>	£120,000	£120,000
Philippines <sup>11</sup>	£60,621 (₱4,500,000)	£60,621 (₱4,500,000)	£94,299 (₱7,000,000)
Total	£140,621	£140,621	£214,300

Source: Newton Agham in-country team

### Pathway to impact

As shown in [Annex 2](#), the LIF programme is a Translation pillar programme but it also covers several other areas across the theory of change, especially in the People pillar due to its emphasis on training fellows at an individual level with projects often in the STEM industry. A summary of Theory of Change activities and their relevance to the LIF are described below:

<sup>10</sup> In practice the actual funding for 2015 was £89,300 according to the Philippines in-country team

<sup>11</sup> Using the 26<sup>th</sup> March 2018 exchange rate of 74.23 Philippine Peso to the pound

- **Activities to support the exchange of expertise:** fellows meet other academics from Mexico, Turkey, Malaysia and Vietnam as well as academics from different institutions within the Philippines.
- **Translation efforts directed towards local development needs and global challenges:** some projects are a direct solution to climate change, agriculture, health, and natural disaster and this is requested at the application stage.
- **Capacity building for innovation and commercialisation** via the 10-day programme in the UK and on-going remote mentoring support from coaches.
- **Local higher education and research institutions linked with the UK:** fellows across batches who mainly were employed through Philippine higher education institutions visited the UK and met mentoring staff from UK universities and research institutions, gaining access to their expertise and training.

### 3.3 Answers to the Evaluation Questions

#### Relevance

The LIF programme aims to help build researcher capacity for entrepreneurship and the application and marketability of their research, targeting individuals who are in the process of developing a business proposition for their innovative service or product. The LIF programme's overall aims and model broadly covers all of the priority areas of the Newton Agham Fund due to the diversity of fellow's innovations. However, the programme **aligns most clearly with the Digital, Innovation and Creativity priority area**, facilitating the growth of creative industries and delivering economic development in the long term. The application process asks fellows to detail the societal or technical problem their innovation targets, the developmental benefits their project may have and whether it will "promote economic development and or/social welfare in the Philippines"<sup>12</sup>. The programme does not explicitly target specific welfare and poverty issues in the Philippines, but this application guideline means that projects put forward by the fellows for development often target other Newton Agham priority areas such as Health, Environmental resilience and Agricultural technology. This also aligns well with several of the ODA priorities outlined in the UK Aid Strategy, which includes focus upon "strengthening resilience and response to crises" and "promoting global prosperity"<sup>13</sup>. In addition, the application programme asks what sustainable challenges the project helps to address from a list including: sustainable health and wellbeing; clean air, water and sanitation; sustainable cities and communities and; reducing poverty and inequality, including gender inequality. Consequently, the **scope of the projects and application process of the LIF programme is closely aligned with Philippine priorities**, as it explicitly requires evidence of alignment in the fellows' application process. During field work interviews respondents also expressed that the programme has the potential to improve the Philippine economy, with one fellow explaining it did so because it builds capacities and "creates a wave of innovation which benefits a lot of sectors".

Interviewed fellows reported that they were approached and invited to apply by DOST in most rounds. Round three of the programme was the exception, as this was an open call. Due to this invitation system, most fellows and TTOs are from well-established institutions or universities with existing ties and funding from government departments, such as the University of the Philippines, De la Salle University and Central Luzon State University. Consequently, while the programme does build capabilities for training and fund innovations which may benefit society, the programme itself is not one targeting social mobility for researchers by widening access to opportunities to smaller or lesser known institutions in its application process.

When asked about the additionality of the Newton Fund, DOST representatives noted that the **LIF programme had led to increased collaboration with the AIM** and that it had enabled the AIM to 'step up' to launch an innovation centre and start relevant new Masters courses. Training staff from the AIM also noted that the programme introduced them to the Royal Academy of Engineering which allowed such a programme with a UK training leg to take place. Also, the AIM had not provided extensive training relevant to innovation and commercialisation in R&D before the LIF programme, indicating that without the introduction of the programme from DOST it might not have become such

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<sup>12</sup> LIF Application form

<sup>13</sup> HM Treasury & DFID, Aid: Tackling global challenges in the national interest (2015), p. 3

a focus of the institution, at least not being introduced at the same speed. In broader terms, the Newton Fund had enabled DOST to increase the capacity of scientists for research and development, and commercialisation of their output, which is aligned with the strategic priorities of DOST to support science through diplomacy. DOST has started to look at the Newton Fund objectives, and the way that the Newton model brings DOST into the programs as an equal partner, with a view to adopting them elsewhere; this funding model is seen as a useful example for other collaborative research and funding endeavours.

### Effectiveness

The programme has already **facilitated the creation of solutions to development challenges**. Several fellows' projects have developed innovative products which are relevant to development challenges and Newton Agham priority areas, owing to the application process described above. Of the batch three projects, before the programme took place 58% of projects were in laboratory demonstration stage and 25% in prototyping stage<sup>14</sup>. Upon completion of the programme, all fellows had developed beyond the laboratory demo stage and 75% were in the prototyping stage. In addition, by the end of the programme the number of project receiving proof of concept funding had increased from 8% to 46%.

The programme has also shown that it is **contributing to development and strengthening of innovation systems within the Philippines**, although this is largely at the individual fellow or institutional level and not through introduction of new policy. For example, one of the problems that fellows reported was a lack of time to balance their academic responsibilities and fully participate and / or implement what they have learnt at programme close. One fellow who was senior at their university explained that based on their work and experience of the LIF programme, they had successfully petitioned to have their university introduce leave which released them (and potentially others) from some of their academic duties so that they can pursue their LIF or business enterprise more dedicatedly. While this has just been at one institution, this is a unique introduction for the Philippines, indicating the potential for change and an emerging impact of the programme in building up support for innovation and commercialisation systems within academia.

During focus group discussions most fellows stated that their achievements under the LIF programme had increased their knowledge of building business development capabilities more generally. Increased engagement between Philippine Fellows and their local industry partners was noted as strength of the LIF by coaches interviewed during fieldwork. Several **new international partnerships have been established** through the programme, both directly and indirectly. The AIM, DOST and the Royal Academy of Engineering had never previously collaborated and did so for the first time because of the LIF Programme. Moreover, several of the fellows and Technology Transfer Officers stated that they had established new international partnerships as a result of their participation. During a focus group discussion several fellows explained that new collaborations came about from meeting other fellows from participating countries. Fellows also spoke positively about the programme creating a 'community of practice' at the national level and expressed desire that it should be expanded to include international fellows as well.

Some LIF fellows were already business owners, and one in particular who was interviewed stated that the LIF programme had expanded their existing networks in countries such as Taiwan. Others spoke positively about meeting LIF fellows from other countries during a Bangkok networking event and UK placement weeks. One Technology Transfer Officer who has worked on commercialisation of a technology for biocontrol for banana fungi noted that they had established a partnership with a Belgian company as a result the LIF and highlighted that another fellow was able to study in the University of California as a result of LIF participation. In terms of new collaborations with the UK, several fellows said that they have continued to work with the UK and one in particular has established links between the University of the Philippines and the University of Oxford to continue the development of their LIF healthcare project. These benefits and increased collaborations have not been limited to individual research placements. In the case of one Filipino fellow's project, there is potential for uptake of their new technology by the UK government in policy for fish monitoring technology within marine nature reserves (although details of the progress of this collaboration have not been made fully clear for the evaluation).

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<sup>14</sup> Oxentia LIF Year 3 report (2018)

Both AIM and DOST staff stated that the LIF programme and collaboration between the two had in part given the AIM a 'deeper appreciation of the process of research and technological development'. It was suggested that the partnership and LIF programme had contributed to the introduction of two new courses at the AIM, with the DOST pointing to the recently introduced Master of Science in Data Science and AIM stakeholders referring to the introduction of a new Master of Science in Innovation and Business.

### Impact

The impacts of this programme on current or future poverty reduction within the Philippines are not yet apparent at a quantifiable level, which is to be expected in the short to medium term for societal impacts of this nature. Due to the nature of the programme there is the known risk that not all projects or service concepts put forward by fellows for development during the scheme will be successfully carried to a final, marketable state. Nevertheless, as highlighted above most projects do progress through at least one stage of development. For those projects that do continue far into the development cycle, when asked about potential impacts, many fellows and Technology Transfer Officers cited that poverty reduction and improvements to quality of life may come as a result in the long-term, but it is currently too early to see these impacts.

However, impacts from the LIF programme are both direct and indirect in nature, as pointed out by one LIF fellow in interview who explained that socioeconomic impact could not only be derived both through the use and application of innovative products services from fellows' projects but also more indirectly. For example, impact could eventually be derived from the potential creation of jobs from spin-off or start-up companies, which in turn could also create new opportunities for trade. Another 'softer' area of impact can be identified looking at the 'people pillar' relevancy of the programme, as the skills and knowledge that fellows acquire can have a "more immediate effect than most other Newton Fund programmes..." according to one UK coordinator.

The **UK was perceived favourably** by all fellows who were interviewed for this project and involvement in the LIF has led to further collaboration in the UK through other projects. For example, one fellow from the first batch of the programme received further support from the Royal Academy of Engineering after the programme was completed and another fellow applied for an additional Newton Fund programme in Swine and Poultry because of their participation. It is notable that fellows moving on from projects which they initially developed as part of the LIF programme in part shows how the Translation pillar's emphasis on 'creation of new products/ solutions' was less developed than the other Translation pillar aims. The programme encouraged and equipped fellows to seek future collaborations (with the UK and elsewhere) and emphasised increased focus on use of research outputs, resulting in the achievement of two of the other key Translation pillar aims of 'enhancing institutional and commercial links between UK and local businesses (or in this case universities and researchers) and "increasing focus on absorbing and using research outputs'. While the programme had given fellows a positive reflection of the UK, some did not regard collaboration with UK institutions as a key outcome. In focus group discussions on new collaborations and partnerships made, many fellows cited national or regional collaborations with other LIF fellows or partner countries instead as most significant. None reported that the programme had left any negative impressions of the UK and the majority answered that they would be willing to continue work with UK institutions in the future should opportunities present themselves. UK coaches for the LIF also noted that the LIF programme had benefited perceptions of the UK and explained that the programme had allowed for a rise in awareness about the scope of the UK's innovation base and the innovation and development of services and products that takes place in the UK. That English is one of the two main languages used in the Philippines is also of huge benefit, with one coach noting that this was a strength which facilitated interaction generally compared to some fellows from other countries as, whilst all LIF fellows are fluent in English, there are still some challenges.

At the **Institutional level**, AIM staff stated that new collaborations had only been established with the Royal Academy of Engineering as a delivery partner and that there was a desire to enhance this collaboration and exchange further. There was no memorandum of understanding or extra detail available to the evaluation at the time of writing. DOST staff also expressed positivity about future collaborations with the UK through LIF and other Newton Programmes although they expressed a desire to have more input on the design of project calls in the future. Similarly, the relationship between the Royal Academy of Engineering and DOST was described by the UK side as having a 'positive energy' with a lot of trust between the institutions as a result of several meetings across the four years of operation.

### Complementarity and coordination

Much of the impact of the programme is at a 'soft' level, relevant to perceptions of science and innovation and the interlocking roles of academia industry and government. During focus group discussion fellows stated that the programme has demonstrated that academia is relevant to industry in the Philippines and, through constant dialogue with the private sector, innovative products can be developed. Several groups also emphasised that the programme had led to a change in perceptions on the role of academia and research, namely that it does not exist in isolation but can be beneficial and relevant to policy formation and the designing and marketing of technologies.

The applicability of the UK innovation landscape and several of the tips and methods taught to fellows during the programme was, in places, not well aligned with the Philippines' context, as noted by both participating fellows and UK coaches based on feedback and monitoring during the programme. More recent batches have attempted to combat this issue, and the design and implementation of the programme and some of the lessons are being modified based on learnings each year according to delivery and implementation partners contacted during fieldwork. Oxentia recently held a meeting with coaches tackling this precise issue, discussing methods to better understand the funding structures and intellectual propriety landscape of the Philippines and other partnering LIF countries.

So far there has not been any policy impact as a direct result of the LIF programme. However, some fellows noted that based on challenges encountered with copyrighting processes under Filipino law, some action has been taken at the government level to try and address current guidelines and legislation (although this is in preliminary stage). Across all rounds, the programme has encountered declining engagement from fellows upon the completion of the second stage of the programme when participants return to the Philippines. Specifically, fellow's engagement with the UK coaches and wider LIF team tends to decline. However, the Philippines has been praised by UK LIF coaches for its 'demo day' in its third year which invited UK coaches to the AIM in the Philippines. This both strengthened the programme and was praised for boosting networking and collaboration benefits for UK stakeholders. This was in addition to the existing measures to maintain momentum within the programme. These include the 6-month landing programme in AIM; the pre-existing version of the 'demo-day', which did not include the UK coaches but which still motivated fellows to develop pitches, keeping them up to date and maintaining momentum on the project; and follow up events and opportunities run by DOST where fellows can pitch their technologies even after the completion of the LIF programme.

### 3.4 Conclusions

- There are several examples of successful training / mentoring for fellows, many of which have developed their project or innovation and established new or preliminary industrial links with opportunities to showcase their technologies. However, not all fellows have created new relations with industry.
- The LIF programme has facilitated the creation and strengthening of relationships at multiple levels. It allowed the AIM and DOST to work together and build a relationship around their shared goals and allowed fellows to expand their networks and engage not just with UK science bases but those of other partnering Newton countries.
- The LIF programme has improved researcher and institutional capacity by helping fellows increase their knowledge about industry and the commercialisation process. More softly, it has worked to break down the perception of industry and academia in the Philippines as two sectors which run parallel without relevancy to each other. This impact can be broadened as fellows will go back to their institutions and share their learning.
- Engagement decline upon completion of the second stage of the programme as fellows failed to keep in contact with mentors or the wider LIF team has been a problem for the Philippines during the programme's first three years.
- One of the key design issues with the programme is the applicability of UK innovation sector training to Philippine (and other partner country) fellows. While some of the more skills-based training is relevant (i.e. pitch design), much of the training is more relevant in creating links and seeking funding or sponsorship

within an innovation industry similar to the UK's. Several fellows and coaches noted this limits the benefit of the programme, and the UK coaching team has recently held meetings about tackling this area.

- This project has potential to address socioeconomic challenges in the Philippines although examples of such impacts are not yet clear. This is to be expected for long-term outcomes of this type, and will likely require review after this evaluation's lifetime. Due to the application process, which asks fellows to demonstrate the socioeconomic benefits of their project in areas such as climate change, agriculture and healthcare, there is considerable potential to create positive impact should projects be successful.

## 4 Developing Rice Resources for Resilience to Climate Change & Mitigation of Carbon Emissions

### 4.1 Summary

Action title	Developing Rice Resources for Resilience to Climate Change & Mitigation of Carbon Emissions
Short description	This project aims to improve the quality of rice straw for use as animal feed, biofuel production and bioenergy generation in order to deter rice-straw biomass burning by agricultural workers. The project works to identify process routes which add value in biofuel and bioenergy applications for rice straw, not only to reduce the damaging effects of biomass burning but to potentially increase the income of rice farmers, reduce the costs of animal feed and displace the use of fossil resources for fuel and energy generation. The secondary emphasis of the project is the development of rice varieties with greater resilience to temperature stress resulting from climate change. The project is multilateral with partners from the UK, the Philippines and Vietnam.
Objective(s)	The objectives of the project are to reduce carbon emissions from biomass burning of excess rice straw, to improve the quality of rice straw for use as animal feed and biomass usage and to develop rice variety with greater environmental resilience, especially to temperature stress and weather changes
Pillar	Research
Action value (total budget allocated in country, in GBP) <sup>15</sup>	UK: £775,664.34 Philippines: £198,177.98 Vietnam: £120,000 Total: £1,093,842
Start / end date (Status: on-going or complete)	June 2016 - May 2019
DP UK and overseas	UK Biotechnology and Biological Sciences Research Council (BBSRC), Philippines Department of Agriculture – Philippine Rice Research Institute (PhilRice), Vietnam Ministry of Science and Technology
Award holders / grantee	University of York, Department of Agriculture - Philippine Rice Research Institute (PhilRice) and Philippine Carabao Centre, Vietnam Field Crops Research Institute

<sup>15</sup> Using figures from application form. Amount actually provided by the Philippines has been decreased but final figures were not made available for the evaluation.

## 4.2 Description of the action

The project 'Developing Rice Resources for Resilience to Climate Change & Mitigation of Carbon Emissions' (hereafter referred to as the 'rice resilience project') has two main pillars. The first relates to processing rice straw varieties with low silica and high digestibility which can be used for biomass and animal feed. More specifically, this is to discourage farmers from burning rice straw after cultivating rice yields, which releases high levels of carbon dioxide and other chemicals which negatively affect the environment. The team aims to develop alternatives to burning which incentivise collection and deter burning, increasing farmer incomes, reducing costs for animal feed and potentially developing new crop substrate, biomass or biofuel sources. The second pillar of the project relates to environmental resilience, namely in identifying and developing rice straw which is resistant to adverse climate affects, especially to temperature stress and weather changes. This is to be achieved by developing breeding resources that will improve Rice Straw in the Philippines and in Vietnam through genome studies. The award holder of the Programme, PhilRice, is based in the Science City of Muñoz which is within the Nueva Ecija province (highlighted in blue below).

**Figure 3 Rice Initiative Map**



This project is one of four programmes that the institute PhilRice (also referred to as DA PhilRice due to its link with the Department of Agriculture) is running through the Newton Fund's 'UK-China-Philippines-Thailand-Vietnam Call for Collaborative Research Proposals in Rice Research'. This call ran between June and August 2015 and awarded £6.7 million to 13 projects in total. Four of these projects include the Philippines as a partner country (PhilRice is the awardee for each of these Philippine projects). However, each project team works with a different UK award holder. The three other projects are shown in the following table.

**Table 3 PhilRice Newton Project details**

Project	UK funded amount	UK Organisation	Other partner countries?
Enhanced Rice quality for Health (EnRicH)	£493,525	Rothamsted Research	No
Molecular characterization and genetic analysis of nutritional components of Philippine indigenous pigmented rice germplasm	£644,834	National Institute of Agricultural Botany	No
Real time deployment of pathogen resistance genes in rice	£479,403	Rothamsted Research	Thailand

Source: BBSRC Website

The Rice Resilience project is multilateral, involving award holders from the UK, Vietnam (another Newton Fund country) and the Philippines. These partners include;

- The University of York
- The University of Dundee
- The Institute of Food Research (UK)
- The Vietnamese Academy of Agricultural Sciences (VAAS)
- Vietnam's Field Crop Research Institute (FCRI)
- DA PhilRice
- The Philippine Carabao Centre (PCC)

The project has been highlighted as an example of best practice in Vietnam as it was nominated and shortlisted as one of five projects for the Newton Prize in the country, giving greater visibility to all institutions involved and showing the project as a positive example of bilateral, international partnership.

### Pathway to impact

As demonstrated in [Annex 2](#) the Rice Resilience project predominantly covers pathway nodes relevant to the research pillar within the Newton Theory of Change. However, it is also relevant to the Translation pillar, due to the emphasis of the project on affecting agricultural practices by using the research to encourage new uses or processes for rice straw. A summary of Theory of Change activities and their relevance to the Rice Resilience project are described below:

- **Joint research programmes** – PhilRice, the Philippine Carabao Centre and the University of York teams had not previously collaborated, and the project established a joint research programme between the two.
- **Bridges for researchers and innovation dialogues** - This Newton Fund initiative allowed the Philippine researchers to engage with and join the project through a networking workshop, exposing them to the expertise of both the UK and Vietnamese researchers involved. The Philippines' rice varieties are different to those of Vietnam which widens the research scope and the PhilRice team has been introduced to innovative new research methods through the project.
- **Activities to establish and strengthen institutional links and support exchange of expertise** - PhilRice team members have travelled to the UK, strengthening relations with the University of York and receiving training and briefing on research methods and tools relevant to the project.
- **Local higher education and research institutions linked with the UK; access to facilities, funding, equipment and networks** - the project has allowed PhilRice and the Philippine Carabao Centre to be linked with the UK for the first time with access to their networks and expertise. They have also been provided with new research equipment and training on research methods.

## 4.3 Answers to the evaluation questions

### Relevance

The Rice Resilience project is relevant to several areas targeted under the BBSRC call itself, including improving rice quality, resource use efficiency and improving resilience to biotic stress (damage done to an organism by other living organisms such as bacteria or insects) and abiotic stress (damage of non-living organisms such as drought or extreme temperatures). It is also well aligned to global and Philippine priorities.

The University of York and its partnering Vietnamese institutions VAAS and FCRI had collaborated since 2010 on developing approaches to rice straw biorefining, as well as on the Vietnam rice diversity panel for Genome Wide Association Studies (GWAS). Before the Rice Resilience project launched, another two collaborations had taken place which were co-funded by BBSRC and the Vietnamese Ministry of Science and Technology. These projects produced substantial bodies of data on areas which were relevant to the Rice Resilience project and the groups were looking for further funding to develop the work. The Philippines' involvement with the project came at a later stage, when the organisations first met and discussed the project multilaterally during a workshop held in Bangkok in 2015. Both UK and Philippine stakeholders explained that this workshop introduction ignited the collaboration. Potential collaborators had been identified before the workshop meeting and PhilRice members claim their institution was identified by the University of York before attendance because of the centre's experience of rice research, especially on the ease of digestion of specific rice varieties.

The PhilRice team had previously tried to collaborate with Vietnamese partners unsuccessfully and praised the Newton Fund for **allowing the regional cooperation to take place**. Moreover, the Newton Fund provided a larger sum of money targeting the Philippines and Vietnam. Previous funds secured for such projects had been considerably smaller (e.g. £50,000 mainly for travel expenses), and the Newton Fund allowed the project to take place. The Newton Fund provided the University of York team members the opportunity to expand their existing research. The Philippine Carabao Centre team representative also claimed that the Newton Fund project had increased collaboration with PhilRice and exposed them to relevant Vietnamese organisations, elevating the scale of their work.

Whilst the project's design was not built to specifically target Philippine policy and socioeconomic priorities, having already largely been designed before PhilRice's involvement, the two do align. The case for support for the project not only cited PhilRice's expertise as a motivation for expanding their existing collaboration but also emphasised that "PhilRice and IRRI recognise the potential for improving farmer income and mitigation atmospheric pollution by finding ways to generate value from rice straw and husks"<sup>16</sup>. The project was designed to improve economic and social development through increased food security, farmer income and reduced environmental impact in partner countries. In addition, agricultural R&D is a focus area under the Duterte administration. The PDP 2017-22 outlines strategies to facilitate access to technology for farmers through increased investments in R&D for the Agricultural sector, as the 2015 aggregate budget for R&D in DA and DOST PCAARRD was 0.29% of Agriculture, Forestry and Fishing GVA (using 2017 prices), considerably less than the 1% recommended for developing countries<sup>17</sup>. Most relevant to the Rice Resilience project, one of these R&D priority areas is 'development of climate and disaster responsive technologies and innovations'.<sup>18</sup>

### Effectiveness

The project is expected to address economic development and poverty reduction in the Philippines through several avenues, namely through the reduction of harmful environmental impacts and the creation of wealth for farmers through money saved on animal feed and selling of rice straw products for other biomass and biofuel purposes. Burning rice straw not only causes air pollutants such as carbon dioxide, nitrogen oxide, carbon monoxide and sulphur dioxide but can also decrease soil's nitrogen, phosphorus, potassium and sulphur content. The process is technically illegal, and was banned under the 1998 Philippine Clean Air Act and the Solid Waste Management Act,

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<sup>16</sup> Additional Project Information page 18

<sup>17</sup> PDP page 94

<sup>18</sup> PDP page 102

however, these are often ignored in practice. Burning the straw is cheaper for farmers and requires less labour time. Farmers in the Philippines and in other tropical regions tend to produce 15.2 million tonnes of rice per year leaving 11.3 million tonnes of rice straw across two to three yields. The cost of gathering and transporting rice straw from previous yields is far greater than burning this straw across the field. Consequently, the project aims to create straw varieties that incentivise the collection and selling or use of rice straw by bringing farmers income which outweighs the labour and time cost.

The impact on the PCC and PhilRice has been substantial, as it has **enabled successful research collaborations at the regional, national, and international levels**. The Newton Fund was described as “instrumental” by PhilRice members in allowing the PCC and PhilRice to partner with the UK and Vietnam and was also described positively for expanding the scope of their research areas and introducing new methods such as Genome Wide Association Studies. In addition, the Newton Fund project has strengthened existing and established new research collaborations for the PCC according to team members. The nature of their collaborative work with PhilRice and the scope of their own research work has also expanded, as the PCC had not worked on the utilisation of rice straw previously. Now the Centre is developing another proposal to work with the Philippine Government, this time with the Department of Social Welfare and Development (DSWD) on work relevant to this project’s findings.

The project has not been without difficulties. The interviews with Principal Investigators (PIs) of PhilRice projects and executives of the institution revealed that interviewees were under the impression that the project would be fully grant funded by the UK, and consequently had to apply for external funding from other Philippine funding agencies such as the Department of Agriculture’s Bureau of Agricultural Research (DA-BAR) and DOST. However, application for external funding has been unsuccessful. PhilRice has consequently drawn from its own Core Funds to fund each of its Newton Fund projects, which has caused difficulties and frustration at the institutional and project level. The source of the confusion is unclear, as there have been meetings between the Newton team, PhilRice and BBSRC with the understanding that DA PhilRice was willing to provide co-funding, whilst a publicly available call document gave extensive information about co-funding opportunities which were applicable. The impact of the confusion has been to somewhat dim PhilRice’s perception of the Newton Fund as a collaborative partnership programme. A signed MoU or MoA when the call was launched could have potentially helped alleviate this problem. In any case, this has not clouded actual perceptions of UK partners as PhilRice and the University of York have jointly **applied for funding from the Global Challenges Research Fund** to develop work carried out through the project.

The programme has also created new research partnerships and had other benefits to the UK. While the UK and the University of York has developed Genome Wide Association Study (GWAS) experience in barley and wheat studies, it has limited experience in rice GWA work. This project has opened up the opportunity to enhance cereal research in the UK through access to rice with the relative simplicity of transferring information between species, as a result of the close syntonic relationships between cereals. The UK PI also noted it **has expanded the extent of their collaborative network within Vietnam** as part of the project, as in May 2017, the UK team toured Vietnam and established collaborations with a biotechnical company research institution with intensive rice growing areas in Saigon and Kantou.

## Impact

These new collaborations have delivered work which in theory should positively impact the economic and social development needs of the Philippines. However nearly all stakeholders who were interviewed noted that this would be a long-term impact, and it is **too soon to view any impact on the ground**.

Any impact the project may have is not limited to the Philippine islands. Rice crop is a major resource globally in many countries, and although several nations do already use alternative methods beside burning, agricultural workers from these countries can still benefit from any extra uses identified for certain rice varieties, such as livestock feed, biofuel or chemical use. Benefits of reduced carbon release in the earth’s atmosphere and reduced climate change damage will also have impacts spanning national borders too. A UK team member also noted that the project and its benefits align with several of the UN Sustainable Development Goals, due to its emphasis on environmental protection, reduced climate change impact and creation of income and food security.

The impacts of increasing the use and quality of rice-straw for animal feed (specifically for Carabao) has a much quicker route to impact, as its introduction requires considerably less infrastructure planning and technology than the establishment of trade agreements with processing plants that can produce chemicals or biofuels. The trade-off for

this is that, while delivering a quicker impact, using excess straw for animal feed requires far less straw and is smaller scale. Positively, the Philippine Carabao Centre (PCC) has noted that it has already had a private group approach them twice to enquire about how to develop a private led collection and commercialisation for rice straw. The PCC is currently leading its collection and use locally but would prefer seeing a cooperative group doing so, building a business model around it.

Plans to target poverty reduction through the project's emerging findings about the suitability of rice straw for animal feed are already underway. The PCC stated that in 2018 the group has put forward a proposal in partnership with the Department of Social Welfare and Development's (DSWD) Sustainable Livelihood Programme (SLP) which would identify low income farmers to be provided with some capital (20,000 pesos per farmer). In the proposal farmers are linked together in groups of two to three to collect rice straw and then sell it for roughly 10 to 12 pesos per bundle to carabao owners or farmers cultivating mushrooms (as PhilRice research has also shown rice straw can be used as a mushroom substrate). This has great potential to improve the farmer's economic development while incentivising against environmentally damaging actions.

Overall, the Philippines PI stated that participation in the Newton Fund had improved their perception of the UK both because of the increased multi-cultural interaction and in terms of funding opportunities. While there have undoubtedly been issues around funding expectations under the Newton Fund, with some interview respondents feeling there was a lack of clarity in the application process, the partnership with the UK science base was described to be favourable overall. There were, however, some issues raised in terms of work processes, namely the response speed of emails compared to previous international partners (e.g. with Japanese institutions) as well as the need for a Memorandum of Understanding at an earlier stage of the project to ensure clarity on responsibility and expectations.

### Complementarity and coordination

There are some early signs of the project facilitating changes at the institutional level. For example, a PI of one of PhilRice's other Newton projects noted that the emphasis on impact as part of the proposal process and research design in collaboration with their UK delivery partner was incredibly beneficial and would affect how PhilRice teams design and produce proposals in the future, as this was different to calls and proposals done within the Philippines. PhilRice stated that the project team had not been contacted about using the project's model or findings for other applications. However, it was noted that such interest may occur in the future when the long-term impact potential of the project becomes clearer. Interestingly, Philippine Carabao's role within the project has garnered interest from a private sector group who were enquiring about commercialisation of rice straw for dairy and livestock farmers, which they hope will lead to commercialisation in the future. It is notable that in interviews about government and industry interest, the Philippine Carabao Centre discussed both these expressions of interest from private enterprises and the ongoing proposal to work with the DSWD. However, PhilRice representatives did not mention them. This may indicate either a difference in priorities or possible communication issues between the two collaborators.

## 4.4 Conclusions

- The Rice Resilience project provided the PhilRice team with the opportunity to work with UK partners and Vietnamese researchers which would not have happened without the Newton Fund call. The project has also strengthened the nature of PhilRice's relationship with the PCC.
- The PCC has been given opportunities to increase training for farmers and the government and has also received media and private sector interest for their role in the project (although PhilRice has not experienced similar interest).
- The project acted as a springboard for continued collaboration between the University of York and PhilRice, as the team recently applied for GCRF funding with an offshoot project.
- The project has the potential to create socioeconomic benefits both in the Philippines through the creation of income for farmers and by mitigating climate change in long term via a reduction in carbon emissions.
- PhilRice told interviewers they had been mistakenly under the impression that that the Newton Fund was a fully-funded grant. This misunderstanding has led to several complications during implementation. PhilRice

has been unable to meet some of its financial commitments as funds were taken from its core funds to participate which has led to unexpected re-use of funds or delays to project implementation.

- There is no MOA between PhilRice and its UK and Vietnamese partners, which has led to implementation and planning difficulties which PhilRice expressed concerns about and explained they would approach differently in the future.

## 5 ENSURE: Enhanced Surveillance for Control and Elimination of Malaria in the Philippines

### 5.1 Summary

Action title	ENSURE: Enhanced Surveillance for Control and Elimination of Malaria in the Philippines
Short description	The ENSURE project is one of six funded under the Medical Research Council (MRC) and DOST Philippine Council for Health Research and Development (PHCRD) joint health call. Most of the provinces in the Philippines are in the malaria elimination phase, and the integrated surveillance tools to be developed in this study aim to more effectively identify risk of exposure to and infection with malaria to enhance malaria control and elimination activities in the country. The ultimate goal is to develop an approach that can be easily integrated into the existing health system.
Objective(s)	<p>The main objective of the ENSURE project is to enhance the Philippines' malaria surveillance activities for a comprehensive understanding of malaria information collected through health facilities in three provinces of differing disease burden. The platform for this information is a risk map containing geo-location of people's homes and work areas (likely area where they contracted the infection and potential sources of ongoing transmission (asymptomatics)).</p> <p>The long term objective is to develop and establish an integrated surveillance tool for more effective identification of risk of malaria infection to contribute to enhanced malaria control and elimination activities. This is to be done by a) trialling new ways to detect where malaria cases may be occurring, and b) diagnosing through blood samples and testing not just the malaria parasite but immune responses as well.</p>
Pillar	Research
Action value (total budget allocated in country, in GBP) <sup>19</sup>	UK amount: GBP 399,992.6 PH component: £226,006 <sup>20</sup>
Start / end date (Status: on-going or complete)	14/01/2016 – 13/01/2019 (Phillipine project extended to January 2020)
DP UK and overseas	Medical Research Council (UK), Department of Science and Technology - Philippine Council for Health Research and Development

<sup>19</sup> Figures from the application form and panel meeting

<sup>20</sup> Using the 26<sup>th</sup> March 2018 exchange rate of 74.23 Philippine Peso to the pound

Award holders / grantee	London School of Hygiene & Tropical Medicine, Philippines Department of Health - Research Institute for Tropical Medicine
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## 5.2 Description of the Action

The ENSURE project is one of six which have been funded under the first round of MRC-PCHRD's joint health call, each of which focuses on a different health issue and involves different local delivery institutions. The joint funding call focused on infectious diseases, a priority area of healthcare in government policy, and was closely designed between the PCHRD and the MRC.

As the call was about to open, MRC and DOST PCHRD organised a partnering workshop in Manila to bring UK and Philippine researchers together. Each participant talked about their own research interests and that of their institution. The workshop was organized at PCHRD's request to address the lack of familiarity between the research activities in the UK and the Philippines, as well as the very limited network of UK and PH researchers who would have known each other. The research call had a rigorous application process which ended in a joint panel meeting in the UK.

The main stakeholders of the ENSURE project in the Philippines are the National Malaria Programme, specifically those involved in malaria surveillance activities, including the Research Institute for Tropical Medicine (RITM).

The ENSURE project's activities are broad in scope, including training healthcare providers in the field on geolocation methods, laboratory analysis of samples and stakeholder engagement. The project places emphasis on testing companions of patients who attend clinics for malaria testing as well as the patients themselves, to possibly detect cases in asymptomatic individuals. Blood spot samples, rapid diagnostic testing (RDT) readings and blood films are all collected in the three provinces the project works in: Palawan (which accounts for over 90% of Filipino Malaria cases), Occidental Mindoro and Bataan (shown in Figure 4). Patients are also asked to record geodata using a questionnaire on a tablet at the clinic to build a geotagging database efficiently. Microscopy tests for malaria are done in the field but blood spot samples are sent to RITM (and occasionally LSHTM) for molecular analysis and serological analysis. Clinical, laboratory, and epidemiological data are also analysed together with spatial epidemiology using statistical software. The ENSURE team also conducts health systems analysis, interviewing stakeholders about the possible integration of ENSURE into health systems.

Since the inception of the project there has been a change in Principal Investigator (PI) within the RITM team, as the initial PI has since gone on secondment as co-director of the Asia Pacific Malaria Elimination Network (APMEN). Despite secondment, the previous PI is still involved and informed about the project, and reported during interview that the APMEN will also be interested in the results of the project, reflecting alignments with regional and global development goals as well.

Figure 4 ENSURE Map



### Pathway to impact

As demonstrated in [Annex 2](#), the ENSURE project lies under the Research pillar but has processes and outcomes relevant to the People and Translation pillars. A summary of Theory of Change activities and their relevance to ENSURE are described below.

- **Professional development and skills training for students, researchers and managers** - capacity building has been a key benefit of the project, with one RITM researcher undergoing rapid training for one month in the UK to maximise use of technology back in the Philippines.
- **Joint research programmes** - While there was an existing the collaboration between the UK and Philippine institutions, all participants claimed the project had strengthened this existing relationship and RITM also claims to have initiated collaboration with other Asian institutions through Newton Fund participation.
- **Bridges for researchers and innovation dialogues** - The project has increased the multidisciplinary nature of the teams involved, as the fund introduced RITM to specialists from LSHTM that they had not previously worked with. It also provided access to data and samples that would otherwise have been unavailable for experimentation.
- **Capacity building for innovation, applied research and commercialisation** - the project's main stakeholder is identified as the Philippines National Malaria programme, and focuses on trialling new detection and monitoring methods to contribute to the eradication of malaria in the Philippines by using evidence from the research with hopes to influence the policy of the national malaria programme.

## 5.3 Answers to the evaluation questions

### Relevance

The ENSURE project is funded as part of the MRC-PCHRD joint call which launched in 2015 with an aim to develop new or strengthen existing UK-Filipino research collaborations. The call for proposals specifically invited applications which were focused on “infectious disease of relevance to the Philippines, particularly on diseases that impact the

most vulnerable in society". There is a clear alignment to **welfare and poverty goals**, as the funding call targets diseases that proportionally affect individuals from lower socioeconomic backgrounds. The call listed several infectious diseases as examples for possible project focuses, and drug-resistant malaria was one of these suggestions. It is therefore clear that the ENSURE project fits well with both MRC and PCHRD expectations under the call. The ENSURE project aims **to assist the Malaria Control Programme's aim to eliminate malaria in the Philippines in 2030**<sup>21</sup> by investigating ways to more effectively identify risk of exposure and infection of malaria. Its main method is to enhance malaria control and elimination activities by integrating different surveillance tools, with an ultimate aim to develop an approach which can easily be integrated into the Philippines' current health system. Project stakeholders repeatedly described the National Malaria Programme as one of the key stakeholders of the project because of this. The programme is also highly relevant to UK ODA objectives, falling under the 2015 Aid Strategy's "strengthening resilience and response to crises" priority area. In addition, the Conservative Party's 2015 Manifesto explicitly referenced "investing to save lives from malaria"<sup>22</sup>.

Before collaborating under the ENSURE project, team members from LSHTM and RITM had worked together for several years on a variety of other projects. Most relevant is a collaboration between the two which took place between 2012 and 2017 on a multilateral project named 'MONKEYBAR'<sup>23</sup>. Although the UK and Philippine institution teams had collaborated previously **the ENSURE project in its current, interdisciplinary form is unlikely to have taken place without the Newton Fund**. Both teams explained that RITM's available funds for this type of research is limited, as the Philippine Department of Health's funding for projects primarily prioritizes service delivery at an immediate level which was seen as limiting to DOST PCHRD stakeholders. To achieve the scope which the ENSURE project currently has, the team would likely have had to rely on several smaller grants to fund specific parts of the project, which the RITM team explained would have come at the expense of the holistic, integrated approach which now characterises the ENSURE project. Malaria elimination programmes usually do not target the Asia Pacific region, focusing instead on African nations with higher prevalence rates, which UK and Philippine team members noted as an obstacle. The Newton Fund's geographic focus and structure around bilateral partnerships helped the project to take shape. The geographic focus of the Newton Fund project was unique within the work undertaken by the RITM, although the LSHTM team were less convinced the project would not have otherwise happened through other means without the Newton Fund.

### Effectiveness

All stakeholders interviewed for the project described the collaboration and the project positively. The programme reportedly allowed the nature of the RITM's and LSHTM's current partnership and the scope of their research to expand. One of their most significant past collaborations, the MONKEYBAR project, mainly focused on identification and mapping of malaria instances within human populations. Fieldwork interviews revealed that when the LSHTM team approached RITM to apply for the Newton Fund programme to expand upon this work, the RITM argued to expand the scope beyond surveillance to also align the work with elimination targets. This change in research scope suggests that the Newton Fund not only strengthened existing research collaborations but increased emphasis **on welfare and poverty issues within the Philippines and the Department of Health (DOH) as a result**, especially as this widened scope was possibly partly because of the size of the funding available. The project facilitates identification of when infection or parasites have been transmitted and who has been infected, which potentially has strong positive impacts on the welfare of Filipinos in high risk locations. In the long term the project and its outcomes may affect the local economies of high-risk malaria locations too, as described by one LSTHM stakeholder who explained that some infected individuals are unable to work due to their symptoms and tourism may likely increase as malaria risks decrease.

The project has also reportedly **expanded the scope of collaboration between LSHTM and RITM**. Under the ENSURE project a very experienced malaria researcher at LSHTM worked with RITM for the first time, as it had

<sup>21</sup> <http://caro.doh.gov.ph/wp-content/uploads/2016/01/Malaria-Situationer-2015-1.pdf>

<sup>22</sup> HM Treasury & DFID (2015) UK Aid: tackling global challenges in the national interest, p. 11

<sup>23</sup> A five-year project using an interdisciplinary network of researchers in the UK, the Philippines and Malaysia, to characterise the environment (socio-economic and natural) that supports *P. knowlesi* (a type of monkey malaria) infection in its hosts and vectors, to determine the risk factors for exposure in humans and to inform and target control measures

increased relevance to their specialisms. This team member had in fact worked for RITM in the Philippines several decades earlier and had graduated from the University of the Philippines. When the networking workshop for infectious diseases took place, they represented the LSHTM in the Philippines and they also participated in other Newton Agham programmes, namely the Institutional Links programme connecting LSHTM with the University of the Philippines' Genome Centre. Being introduced to this researcher was seen very positively by RITM team members, as it provided them with access to experience of molecular characterisation of parasites and parasite genetics. Based on positive experiences with the current team with which they work in RITM, LSHTM team members have put in a proposal with a separate RITM Tuberculosis research team under the 2<sup>nd</sup> MRC-PCHRD funding call in November 2017, highlighting the Newton Fund once again facilitating the scope of collaboration between the two institutions.

The workshop organised for the call, which was designed to introduce research partners and demonstrate various institutions' staff and work, was also commended by all project staff. UK team members noted that, due to the UK's usual focus on non-Asia Pacific countries for immunology funding such as malaria research, a unique platform had been provided to demonstrate the expertise and capacity of the Philippines to the UK and vice versa. It is hoped that this exposure and the work done through ENSURE and other joint projects will make the Philippines a more obvious collaboration partner in the future and that more funding opportunities might subsequently become available enabling the UK to embark upon future partnerships in the country.

The ENSURE project was also praised by team members for its capacity building impact on RITM staff. Two team members have visited the UK since the project started for training and to conduct lab work. One team member **underwent intensive training in Luminex assay software** for one month in the UK, which contributed to the Philippine team's capacity to detect residual malaria infection through seropositivity (having a positive serum reaction to a test for the presence of an antibody) in different age groups back at RITM. This increased training gave confidence to RITM researchers in using statistical software. Similarly beneficial, another RITM fellow is currently working in LSHTM labs to conduct sequencing of drug resistant genes, conduct Luminex analyses of genes for a sample brought from the Philippines and perform whole genome sequencing of parasites. In addition to this technical expertise, RITM claimed that it had benefited from collaboration with LSHTM since it functions as a national reference laboratory for malaria for Public Health England.

The benefit for researcher travel between countries is reciprocal, as UK stakeholders noted that visiting researchers provide information and insight into parasites or samples from the Philippines while the Philippine fellows also have access to training which can build efficiencies back at RITM labs. LSHTM fellows have also visited RITM labs in the Philippines to assist in statistical analyses for results from the Luminex results, sharing expertise once more. Team members also argued the project and general call participation had benefitted the UK, by allowing British researchers to see new approaches applied on the ground, understand the global health landscape and to better understand health service delivery in the Philippines.

The main difficulty reported by both Delivery Partners was the issue of funding release and differing review processes between countries. The UK and the Philippines have different procedures for releasing funds, as the UK partner has funding pre-approved for the three-year span whereas the PCHRD requires the RITM team to write a yearly review which is evaluated to approve next year's budget. After the first year of the project, the RITM team had considerable difficulty during their review as one PCHRD Epidemiologist challenged some of the objectives of the project, which delayed fund release for the project by two months and affected deliverables and timelines. Some other practical difficulties were also reported, such as communication speed and changes to the project after the proposal stage (e.g. sample sizes expanded). Despite these difficulties, based on the success of the first funding call round (across all six projects) the second MRC-PCHRD call was launched sooner than anticipated, closing in November 2017. As described above, ENSURE project members from the UK have bid under this call too, demonstrating that the Newton Fund is continuing to provide opportunities for UK and Philippine institutions with different research backgrounds to collaborate internationally.

### Impact

The project shows a potential to impact on health and welfare within the Philippines, for reasons described above. However, the project is **not currently at a stage where impact can be measured**. Although wider societal and development impacts at the national level are not clear at this stage, there are emerging impacts which indicate the projects ability to do so in the future.

Observations under the ENSURE programme have revealed that the Philippine National Malaria Program's current surveillance strategy is very limited. In Palawan province the project revealed that 14-17% of malaria cases are not detected by current methods (namely applying diagnostic tests and procedures on those who report with fever in health facilities and not testing individuals who are asymptomatic). This finding has the potential to create change in the national programme's strategy, and also underpin potential future research which is being considered by the team for fieldwork projects and laboratory based research (examining why certain proteins are not detected through common testing methods in asymptomatic individuals). The geolocation mapping produced so far was identified by team members as a more immediate output, as it can be used for targeted interventions. One of the three provinces the project works in actually cited the ENSURE project as one of the activities they participated in that had aided in their malaria surveillance, most likely owing to the geolocation system.

LSHTM staff also noted that the PCHRD-MRC call and the ENSURE project had both offered the opportunity to increase the UK's profile and science base in the Philippines. The Philippines traditionally collaborates with US partners and programmes for research projects, or with Australia due to geographic proximity. The Newton Fund has provided LSHTM, which as a university is ranked first in the world for Tropical Medicine<sup>24</sup>, with a presence in the Philippines and an increased profile in Asia which could be highly beneficial. Not only does it offer opportunities for more research collaborations, but also access to samples for experimentation specific to different countries in the future.

As described above, there is potential to affect policy and the National Malaria Programme due to the ENSURE's project's objectives related to elimination. In addition, there is potential interest in the results of the project more widely from groups such as APMEN, as malaria eradication and research is a high priority to it and other international institutions (and RITM has existing connections with both). RITM staff also claimed that the project has increased recognition of the RITM more generally. The project's previous PI argued that the project has increased the capacity for the RITM as a national reference lab for malaria. Representatives from both participating institutions also claimed that the profile of their institutions had been raised internationally due to participation in the Newton Fund. The RITM's influence as a national reference laboratory for malaria was strengthened and LSHTM's and the UK's research base and expertise in immunology and tropical diseases, which usually concentrates upon Africa, was demonstrated to the Philippines and other Asia-Pacific nations.

While it is premature to judge if the project will be used as best practice, project team members emphasised the most significant output will be to demonstrate whether the approach being used in the project (i.e. geo-tagging, tablet use) can be shown as successful. Whether this may lead to impacts on best practice in service design is yet to be seen. However, the findings will also more widely inform research and projects outside of malaria research (such as dengue) in the future. RITM is currently exploring research possibilities and relationships in this area as a result.

## 5.4 Conclusions

- The ENSURE project is well aligned to the Philippines' socioeconomic priorities as well as UK ODA and Newton objectives. The project is seen as contributing to the Philippines' DOH's commitment to eradicate malaria by 2030. The project's wider impact could contribute to Global Development Challenges, as reflected by the interest from APMEN.
- The project has expanded the focus of LSTHM's and RITM's collaborative research projects as well as the scope of its research design by providing dedicated and large-scale funding to the region, which facilitated the creation of a holistic project.
- The NF is one of PCHRD's fastest moving collaboration initiatives and it has led to increased collaboration with the UK. Based on the success of the projects between PCHRD and MRC (such as ENSURE) a second call for proposals has been started earlier than planned.
- The Newton Fund allowed the ENSURE project in to take place its current form, with multifaceted scope, as otherwise sufficient funding would not have been available.

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<sup>24</sup> Centre for World University Rankings 2017 rankings

- Difficulties have been encountered due to the different funding processes of the UK and the Philippines, namely the dates involved with different financial years and yearly re-approvals of funds for the Philippines which led to delays due to increased scrutiny for year two.

## 6 Conclusions

### 6.1 Overview

The Newton Fund Programme (locally called the Newton Agham Programme) aligns well with policies under the current climate, with emphasis on increased investment and attention in developing science and innovation as part of the country's economic growth model. With Philippine government departments or organisations acting as Delivery Partners in all three case studies reviewed above, it is not surprising that each is aligned to government and Newton Agham priority areas (although the immediacy of this relevance does vary, with the ENSURE project clearly linking to national Malaria policy and the LIF Programme and Rice Initiative aligning at a softer level). In addition, the projects reviewed as part of this report are also relevant to the thematic aims of the Newton Fund and align well with wider UK Aid Strategy priorities (most notably strengthening resilience and response to crises and the promotion of global prosperity).

The impact of each case study is not at a quantifiable stage at the time of writing, particular those at the socioeconomic level. ENSURE and the Rice Resilience project have been designed around projects with long timeframes, and outcomes which will require long-term monitoring to effectively measure. However, there are several observable, successful outcomes, such as the introduction of new collaborations with Newton partners and successful results from projects (e.g. the PCC gaining interest from private companies for use of rice straw under the Rice Resilience Project and LIF fellows setting up collaborations or networks with fellows of other countries or European companies).

Overall the Newton Fund has been received well by all those interviewed for this evaluation. However several Philippine government partners stated a desire to be more involved in the commissioning and design of projects at earlier stages. Collaboration and shared responsibility are key principles underlying the Newton Fund model and it is important that collaboration occurs at all stages of the process. While Fund priorities and selected activities have been designed in consultation with government partners within the Philippines and have always included their input on priorities and interest, it was suggested that increased communication with government and academics at the earlier stages would allow stakeholders in the Philippines to have more input on project scope and design in future. While the research identified some other minor shortcomings, these were not seen as an indication the fund and its model were not workable, rather that changes would need to be made in future or built into the process (e.g. introduction of MOUs to clearly define roles at launch, ensuring UK training under LIF would have more relevancy within the Philippines).

### 6.2 Key messages

#### Main themes

- The Newton Fund has provided several Philippine institutions with a platform to collaborate with UK partners for the first time or expanded the strength of current partnerships. This has improved awareness and perceptions of the UK's STI base and its relevance to Philippine policy and research. It has also facilitated the awareness of UK institutions of the capacity and expertise of their Philippine counterparts
- The Newton Fund has not only allowed the Philippines to collaborate with UK partners but also exposed Filipino stakeholders to relevant regional institutions as well, such as other Newton partner countries (e.g. Vietnam).
- The Newton Fund is improving the visibility of participating Filipino institutions, and has increased institutional capacity and research scope in the UK and Philippines alike.
- Whilst the programme reflects a successful partnership, there are opportunities for further improvement. The challenges identified include:
  - Some projects experienced difficulty in providing matching funds from the Philippine side, either due to a lack of availability of funding from particular delivery partners or the delayed release of funds. The

different fiscal years between countries (with Philippines using the calendar year as opposed to April year start) and differences in research funding release practices exacerbated such issues.

- Communication between project partners was raised several times as an issue, with time zones affecting interaction and slow response times across teams affecting efficiency.
- Memoranda of Understanding were often not signed for projects as part of the structured Newton Fund launch process, usually because of the length of time necessary to get these approved, which would not have been possible before call launch. In some instances, this was reported to lead to complications later in projects.
- Several Philippine government partners expressed a desire to be more involved in the earlier stages of activity and funding call design. Greater communication with government partners at initial stages of activity design would be beneficial to strengthen the sense of joint responsibility and collaboration which underpins the Newton Fund model. A signed MoU at activity launch is useful for partners to ensure clarity and agreement on roles and responsibilities.

# Annex 1: References

## Research participants

**Dates of visit: 13<sup>th</sup> January 2018 – 20<sup>th</sup> January 2018**

### Projects visited:

Project	Location	Basic information
<b><i>The Leaders in Innovation Fellowship programme (LIF)</i></b>	<b><i>Philippines/ UK</i></b>	The LIF Programme is aimed at researchers within the Philippines (and several other Newton partner countries) who are at the point of developing a business proposition for an innovation. The programme in the Philippines has three stages. The launch programme involves training at the Asian Institute of Management, including a workshop on pitching. This is followed by a two week residential programme in the UK, where cohorts of fellows from the Philippines and other partner countries benefit from a focussed period of training in entrepreneurship as well as time and access to expert UK Coaches. Fellows are also helped to develop pitch presentations and executive summaries of their business plans. The final 'landing programme' stage commences after fellows return to the Philippines, where they continue to receive remote coaching support from the UK over six months, including a follow-on programme at the Asian Institute of Management in Manila.
<b><i>Developing Rice Resources for Resilience to Climate Change &amp; Mitigation of Carbon Emissions</i></b>	<b><i>Philippines/ UK</i></b>	This project aims to improve the quality of rice straw for use as animal feed, biofuel production and bioenergy generation in order to deter rice-straw biomass burning by agricultural workers. The project works to identify process routes which add value in biofuel and bioenergy applications for rice straw, not only to reduce the damaging effects of biomass burning but to potentially increase the income of rice farmers, reduce the costs of animal feed and displace the use of fossil resources for fuel and energy generation. The secondary emphasis of the project is the development of rice varieties with greater resilience to temperature stress resulting from climate change. The project is multilateral with partners from the UK, the Philippines and Vietnam.
<b><i>ENSURE: Enhanced Surveillance for Control and Elimination of Malaria in the Philippines</i></b>	<b><i>Philippines</i></b>	The ENSURE project is one of six funded under the Medical Research Council (MRC)- and DOST Philippine Council for Health Research and Development (PHCRD) joint health call. Most of the provinces in the Philippines are in the malaria elimination phase, and the integrated surveillance

		tools to be developed in this study are aimed to more effectively identify risk of exposure to and infection with malaria to enhance malaria control and elimination activities in the country. The ultimate goal is to develop an approach that can be easily integrated into the existing health system
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## Stakeholders interviewed:

<b>Organisation</b>	<b>Name (Role)</b>
Newton in-country team / British Embassy Manila	Karen Hipol (Strategic Manager)
Newton in-country team / British Embassy Manila	Renz Cerillo (Support Officer)
British Council	Danie Son Gonzalvo (Newton Programme Officer)
Foreign and Commonwealth Office	Nicola Willey (Regional Director Southeast Asia Science and Innovation)
Royal Academy of Engineering	Shane McHugh (Head of International Activities)
Oxentia	Dr Tim Hart (Managing Consultant)
Department of Science and Technology (DOST)	Dr. Rowena Guevara (Undersecretary for R&D)
University of the Philippines Los Baños	Glen Baticados (LIF Fellow)
University of the Philippines Manila	Kristine Mae Magtubo (LIF Fellow)
Asian Institute of Management	Richard Anthony Cruz (AIM Professor)
Asian Institute of Management	Matthew Escobido (AIM Professor)
Philippine Nuclear Research Institute	Gregory Ciocson (LIF Fellow)
De La Salle University	Merlin Teodosia Suarez (LIF Fellow)
Ateneo de Manila University	Rosula SJ Reyes (LIF Fellow)
University of the Philippines Diliman	Gianinna Santos (LIF Fellow)
Adamson University	Merlinda Palencia (LIF Fellow)
Central Luzon State University	Clarissa Yvonne Domingo (LIF Fellow)
University of the Philippines Los Banos (UPLB)	Hidelisa Hernandez (LIF Fellow)
De La Salle University	Ma. Carmen Ablan Lagman (LIF Fellow)
University of Santo Tomas	Mary Beth Maningas (LIF Fellow)
National Institute of Molecular Biology and Biotechnology University of the Philippines Manila	Fides Marciana Tambalo (LIF Fellow)

## COFFEY

Ateneo de Manila University	Joey Ocon (LIF Fellow)
University of York	Simon McQueen-Mason (Principal Investigator)
DA Philippine Rice Research Institute (PhilRice)	Eduardo Jimmy Quilang (Deputy Executive Director for Research and Development)
DA Philippine Rice Research Institute (PhilRice)	Reynante Ordonio (Principal Investigator)
DA Philippine Rice Research Institute (PhilRice)	Marissa Romero (Principal Investigator)
DA Philippine Rice Research Institute (PhilRice)	Xavier Caguiat (Principal Investigator)
DA Philippine Rice Research Institute (PhilRice)	Jennifer Niones (Principal Investigator)
DA Philippine Rice Research Institute (PhilRice)	Nenita Desamero (Principal Investigator)
DA Philippine Rice Research Institute (PhilRice)	Manuel Jose Regalado (Principal Investigator)
Philippine Carabao Centre at Central Luzon State University	Daniel Aquino (Co-Principal Investigator)
London School of Hygiene and Tropical Medicine	Chris Drakely (PI)
Medical Research Council	Alex Harris (Programme manager)
De la Salle Health Sciences	Charles Yu (Principal Investigator)
Research Institute for Tropical Medicine	Celia Carlos (Principal Investigator)
Research Institute for Tropical Medicine	Jennifer Luchavez (Principal Investigator)
Research Institute for Tropical Medicine	Malou Macalinao (Research Team Member)
DOST Philippine Council for Health Research R&D (DOST-PCHRD)	Jaime Montoya (Director)
DOST Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD)	Abigail Gueco (LIF Monitoring Council Member)
DOST Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD)	Mae Dagaas (LIF Monitoring Council Member)

## Bibliography

Documents reviewed or consulted:

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- *LIF 2 Programme Report, Oxentia (2016)*
- *LIF3 Follow-on Interim Report, Oxentia (Nov 2017)*
- *The Philippine Development Plan 2017-2022*
- *Transparency international country profile for the Philippines*
- *World Economic Forum (2017), The Global Competitiveness Report 2017-2018 (Insight Report*
- *PCHRD-MRC Newton Agham Call details (Cycle 1)*
- *ENSURE Semi-Annual progress report October 2017*
- *ENSURE Quarterly Progress Report (Third Quarter October 2017)*
- *ENSURE Newton Agham Year 2 Accomplishment Report (December 2017)*
- *Rice Research Initiative – Case for Support*
- *Gateway to Research - Developing rice resources for resilience to climate change and mitigation of carbon emissions*
- *Centre for World University Rankings*

## Annex 2 - Theories of Change per Action

LIF Programme

