

**Ministry of Foreign Affairs – (Evaluation of Development Assistance, EVAL)**

**Meeting in the Council for Development Policy 20 February 2018**

Agenda item 4

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| <b>1. Overall purpose</b>                       | For discussion       |
| <b>2. Title:</b>                                | Development research |
| <b>3. Presentation for Programme Committee:</b> | N/A                  |

**Development research**  
**Information paper for the Council for Development Policy (UPR),**  
**February 2018**

*Summary*

*Noting that the adoption of the UN Sustainable Development Goals (SDGs) and the Danish strategy for development and humanitarian assistance ("the World 2030") have significantly altered the context in which development research is undertaken, this paper outlines the arrangements for funding collaborative research that have been introduced since 2016. The overall aim of this funding is to generate new knowledge and increase research capacities through two competitive windows, in addition to the Building Stronger Universities programme (the third phase of which was approved in 2017). Through Window 1 research grants are provided for selected collaborative projects in Danida priority countries. Window 2 funds are available for research associated with strategic sector cooperation (SSC) programmes in a number of "transitioning" (middle income) countries. A series of research themes form the basis for calls for proposals submitted by Danish researchers, as well as by researchers in Ghana and Tanzania. 225 million DKK is available for development research in 2018. A stable multi-annual budget frame would enable continued research efforts as well as opening up for participation in co-financed international research programmes, in order to leverage EU funding and encourage renewed Danish participation in international research initiatives on key development topics.*

1. Introduction – the changing context for development research

Danida has been supporting development research for over 30 years. Researchers both in Denmark and in many developing countries have achieved numerous valuable results through these efforts, in terms of insights and knowledge gained in many different spheres and in terms of strengthened capacities to undertake research and education in developing countries. Furthermore, many Danish higher education and research institutions have benefitted considerably over the years from the opportunities provided through collaborative research projects dealing with themes of critical importance for development processes. Research funding has supported these institutions in their efforts to enhance international collaboration and networks. Funding has also and most importantly resulted in greater understanding of development challenges in a range of sectors where expertise and researchers' insights have contributed to progress: in health (including reproductive health), in food and agriculture, forestry, water and energy as well as in governance, security and economic development.<sup>1</sup>

Through a consultative process, a strategic framework for support to development research (2014-18) was approved in 2014. However, the re-orientation of the policies and priorities for Danish aid have meant that this framework is no longer applicable as guidance for development research funding.

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<sup>1</sup> A selection of recent research highlights are summarized in annex A. It is also worth noting that since 2008 over 440 PhD students have undertaken their research attached to projects funded by Danida.

Furthermore, the adoption of the United Nations sustainable development goals (SDGs) in 2015 considerably altered the context in which development research is being undertaken. In a sense the SDGs have “globalized development”, such that all governments agreed to pursue the same set of objectives, regardless of each country’s high, middle or low-income status. In other words, the SDGs reflect a new vision of global development which applies to all countries and which implies renewed collaboration to seek innovative solutions, including through research.<sup>2</sup>

The example of tackling climate change (SDG 13) provides an illustration of the evolving context for development research. Devising and introducing both mitigation technologies - to reduce greenhouse gas emissions through greater use of renewable energy, etc. - as well as adaptation approaches - to enhance resilience in the face of extreme weather events, etc. - are problems for which research based solutions can be of value in all countries. Similarly, populations in all regions of the world face difficulties related to deteriorating health caused by the spread of non-communicable (“lifestyle”) diseases such as diabetes (SDG 3). Gender inequalities remain significant challenges both in high and low income countries where women’s rights are undermined (SDG 5). In short, development research efforts are needed across a wide range of themes and sectors in order to advance towards the achievement of the SDGs in different groups of countries; from fragile states in Africa and elsewhere to the “transitioning” (or emerging, middle-income) economies on the OECD Development Assistance Committee’s list of developing countries.

These changes are reflected in the objectives for research briefly outlined in the strategy for development and humanitarian assistance (“the World 2030”):

*“Research cooperation between universities and research institutions in Denmark and developing countries will be strengthened and research cooperation will be seen in context with other instruments such as the Partnering with Denmark initiative. The goal is still to contribute to new solutions with new knowledge and approaches and to increase the countries’ capacities for creating and applying new knowledge. Going forward we will also prioritize research cooperation and fellowship programmes in growth and transition countries where Denmark is present and where the countries are facing societal challenges that match Danish strengths, e.g. within climate, water, energy, health and food as well as e.g. democracy and the rule of law.” (2017, page 29)*

Traditionally the case for supporting development research has been based on combining the value of generating new knowledge in aid receiving countries and in relation to Danish assistance programmes. Thus, there has often been an overlap between sector support and research, which explains why, for example, the health and agricultural sectors have benefitted from extensive research funding and scientific collaboration. However, reduced bilateral sector assistance and narrower sectoral expertise within the MoFA have changed the relationship between research and aid. As noted above, adoption of the SDGs also has implications for development research. For example, malaria continues to be a scourge in many countries and encouraging Danish researchers to seek solutions to this disease continues to be important, even though Danida’s

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<sup>2</sup> It is not by chance that SDG 17 deals with “partnerships”, as many forms of collaboration are envisaged in order to make progress towards the targets defined in the other 16 SDGs. The rapid expansion of international education and research exchanges – facilitated by easy access to information technologies – is a characteristic of the early 21<sup>st</sup> Century. The implications of the SDGs on development research agendas are explored in a collection of papers edited by Richard Longhurst: “Has universal development come of age?” *IDS Bulletin*, 48-1, 2017.

health sector programmes have been largely phased out. Participation in international research organisations and networks may be a way forward.

In this context, the purpose of this paper is to summarise steps being taken to strengthen development research collaboration following the approval of “the World 2030” and to outline some new initiatives (in section 4). It is worth emphasizing that the broad political consensus reached in endorsing the strategy provides a good basis for considering how to ensure that financial resources for development research are used effectively in the coming years.

## 2. From strategy to action

Since the end of 2016, funding for collaborative development research has been structured around two channels:

- the **Building Stronger Universities** (BSU) programme which provides support to improve the quality of education and research capacities at six selected universities in Ghana, Tanzania and Uganda in collaboration with several Danish universities. A third phase of the programme was approved by the Council for Development Policy in September 2017.
- the competitive allocation of grants for selected collaborative research projects through two funding **windows** (see below), with the overall aim of generating new knowledge and increasing research capacities.

Table 1. Commitments, 2013-18 and projected amounts, 2019 & 2020 (in mill. DKK)

	2013	2014	2015	2016	2017	2018	2019	2020
BSU II & III	109	0	0	0	90			
“FFU” research projects (a)	98	150	2	98	140	Round in progress		
International research	110	12	6	6	0			
<b>Total</b>	<b>317</b>	<b>162</b>	<b>8</b>	<b>104</b>	<b>230</b>	<b>225</b>	<b>(b) 160</b>	<b>(b) 160</b>

(a) A special allocation of funds was made in 2016 for the research projects selected in 2015.

(b) Estimated amounts assigned in 2018 finance bill.

Table 1 shows the overall allocation of funds for research since 2013, including the budget frame of 225 million DKK available in 2018 and projected amounts for 2019 and 2020. Following the 2015-16 development assistance cutbacks, in the 2017 finance bill it was agreed to provide a total of 230 million DKK to be shared between the third phase of the BSU programme (90 million DKK) and the competitive grants for collaborative research projects to be undertaken by Danish, Ghanaian and Tanzanian research institutions.<sup>3</sup> In addition, a small facility was established to provide mobility grants for researchers in “growth and transition” countries to enable them to

<sup>3</sup> It is worth mentioning that the total amount applied for in 2017 exceeded 2 billion DKK (adding up the amounts requested in over 250 applications, see table 2, below).

build up partnerships with Danish research institutions. As shown in the table there has been no allocation for international research initiatives since 2016.

The Consultative Committee for Development Research (FFU) consisting of an international panel of highly qualified researchers and the Head of Evaluation and Research (EVAL), provides assistance and gives advice to the MoFA for the purposes of selecting and monitoring the research projects. This committee has recently been re-constituted for the coming three years (2018-20).<sup>4</sup> The Minister for Development Cooperation appoints the members of the committee on the basis of endorsement by the Innovation Fund Denmark, which is the Danish authority responsible for the supervision of all public research funding arrangements. The Innovation Fund also approves the recommendations made by the Consultative Committee to the MoFA for the selection of projects to be funded at the end of each application round. The administration both of the application process and of the approved grants is in the hands of a small team at the Danida Fellowship Centre (DFC).<sup>5</sup>

As noted above, in the latest competitive application rounds (which began at the end of 2016) the funds available have been divided between two **windows** essentially targeting two different groups of countries with different modalities.

Through **window 1**, research grants are available for collaborative research projects in the priority countries receiving Danish development assistance.<sup>6</sup> Given the commitment to continue providing aid to tackle poverty and underdevelopment, to strengthen human rights and peace processes and to ensure effective humanitarian responses, the research component is considered an important contribution to other development efforts. As noted above much can be achieved by encouraging collaborative research on critical topics in these countries.

In accordance with the priorities outlined in "the World 2030" applications are required to fall within five broad themes: i) policies for inclusive sustainable economic growth<sup>7</sup>; ii) gender equality and development; iii) the contribution of humanitarian assistance to long-term sustainable development; iv) resilience and climate change; and, v) state building and "fragility." Researchers from Denmark, Ghana and Tanzania working in many different disciplines responded to the 2017 call for proposals.

Both the FFU and the relevant embassies were involved in assessing the applications, which resulted in the approval of research projects covering topics ranging from climate change resilience in urban areas (Ghana) to efforts to halt the tuberculosis and diabetes epidemics (Tanzania), from improving health service preparedness (Burkina Faso) to "imagining gender futures" (Uganda). With the approval of a project investigating the domestic security implications of UN peacekeeping (Ghana), all five themes were covered.<sup>8</sup>

The research projects have a maximum budget of DKK 10 million and a duration of no more than five years. Sixty percent of each grant is directed to research institutions in the developing

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<sup>4</sup> The members are from the Universities of Copenhagen, Ghana (Legon), Oslo, Southern Denmark, Aalborg and Aarhus as well as the Copenhagen Business School (CBS), the Norwegian Institute of International Affairs (NUPI) and the Tanzanian Training Centre for International Health (TTCIH).

<sup>5</sup> Full information is available at: <http://dfcentre.com/research/>

<sup>6</sup> In the 2016-17 and 2017-18 application rounds these are: Afghanistan, Bangladesh, Burkina Faso, Ghana, Ethiopia, Kenya, Mali, Myanmar, Niger, Palestine, Somalia, Tanzania and Uganda.

<sup>7</sup> In the 2016 call for proposals this theme was defined as "technological innovation."

<sup>8</sup> The full list of approved window 1 projects is found in annex B.

country concerned. The 2017-18 call for proposals includes the same five thematic areas while the maximum grant size has been increased to DKK 12 million.

The 2014 strategy for development research particularly focused on a “south-driven” funding modality (piloted since 2008), through which researchers in selected developing countries were encouraged to identify and form partnerships with Danish institutions. In this way the southern partner would assume overall responsibility for the research collaboration. Due to the administrative burden of running the application rounds in these countries, this option was only available in Vietnam, Nepal, Tanzania and Ghana. Following the decision to terminate development cooperation with Vietnam and Nepal, this modality now applies only to Ghana and Tanzania. Responses to the 2016-17 call for proposals indicate that there is considerable interest in both countries, as shown in Table 2 (below). Ensuring support for high quality research in Ghana and Tanzania is being encouraged by including two members, one from each country, in the Consultative Committee for the period 2018-20.

**Window 2** is rather different and concerns research collaboration between Danish institutions and research partners in a limited number of “growth and transition” countries. The themes defined for the research projects arise from and are directly related to the strategic sector cooperation (SSC) agreements that have been signed with various partners in these countries.<sup>9</sup> Thus, in the first round of applications, research projects dealt with a wide range of topics from water resource management in China and South Africa to the provision of mental health services in post-conflict Colombia, from the development of renewable energy in Mexico and South Africa to investigating food quality improvements in Kenya and Vietnam.<sup>10</sup> In this way the SSC agreements signed between Danish institutions and partners in the selected countries constitute a country specific framework for undertaking research and may be fairly narrowly defined in contrast to the broad themes that characterise window 1.

A group of sector counsellors working at the Danish embassies has been involved in defining and describing the research topics linked to the SSC agreements. It is important to stress that window 2 has been launched on a pilot basis with grants of up to DKK 5 million offered for a maximum of 3 years in the first instance. In line with the conditions for the SSC initiative, their own institutions cover the cost of researchers participating from the partner countries. Given the limited duration, there is no funding available for PhDs in the recipient countries at this stage. Projects are expected to involve both public and private partnerships where possible.<sup>11</sup> The research partners in the pilot projects can apply for larger 5-year projects, which will be granted on the basis of criteria that have yet to be determined.

Overall trends in the numbers of applications and grants are shown in Table 2 (below). As noted above, many researchers from Ghana and Tanzania submitted applications in 2017, but only 2 were approved for funding. The total number of Danish applications also soared in 2017, with success rates of 10 percent (window 1) and 20 percent (window 2). The table also shows the fluctuating percentage of project grants given to female applicants (window 1).

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<sup>9</sup> In the 2017-18 application round the countries participating are: Bangladesh, Brazil, China, Colombia, Ghana, India, Indonesia, Iran, Kenya, Mexico, Myanmar, South Africa, Turkey and Vietnam. The SSC initiative (or facility) was initially known as “Partnering with Denmark” (myndighedssamarbejde).

<sup>10</sup> The full list of approved window 2 projects is found in annex C.

<sup>11</sup> In 2017 the DFC fellowship programme was extended to this group of countries, with the offer of courses to master’s level in Denmark on specific SSC topics.

Table 2. Numbers of applications ("app") and grants for "FFU projects", 2013-17

	2013		2014		2015		2016		2017	
	app	grants	app	grants	app	grants	app	grants	App	grants
Denmark (W1)	40	8	39	9	30	5	0	0	84	9
"South" (W1)	n/a	4	63	6	106	6	0	0	121	2
Denmark (W2)		n/a		n/a		n/a		n/a	51	11
Total	40	12	102	15	136	11	0	0	256	22
Per cent female (W1 only)		37%		17%		36%		n/a		45%

### 3. Further strategic considerations

There is a significant emphasis on the promotion of Danish interests, knowledge and expertise in "the World 2030." This rationale is also reflected in linking research to the strategic sector cooperation (SSC) initiative through window 2. The research under this window is considered to supplement the SSC agreements not only in terms of the knowledge produced, but also by providing other opportunities and entries in the national context around the thematic areas corresponding to Danish interests and competencies.

Meanwhile, due to cutbacks in development assistance, support for a number of international research programmes and organisations was phased out in 2015.<sup>12</sup> Thus, while the bilateral Danish research funding was complemented by participation in and financing of international initiatives in the past, this framework has now been abandoned. There may, however, be opportunities to re-consider international funding, particularly in the light of continued Danish participation in global research networks dealing with major development topics and "global common goods" such as health services, "climate smart agriculture", water resources, etc.

Strengthening research capacities in developing countries remains a priority and the third phase of the BSU programme represents substantial continued Danish engagement in this sphere, at least in Ghana, Tanzania and Uganda. Nonetheless, while internationally recognized research institutions and communities are emerging in many middle income ("growth") countries, producing high quality results in sectors ranging from health and agriculture to information technologies, there are severe capacity deficiencies in education and research in many poorer, low-income countries. Countries suffering from conflicts and unrest are particularly - and not surprisingly - at risk of being left far behind in the "knowledge race."

In many countries the value of innovation and research associated with the "knowledge economy" is increasingly understood and often supported by both bilateral donors and multilateral organisations. In consolidating research initiatives based around the themes

<sup>12</sup> Inter alia: the African Economic Research Consortium (AERC), the Consultative Group for International Agricultural Research (CGIAR) and the Council for the Development of Social Research in Africa (CODESRIA).

identified in both windows it will be important to ensure that the Danish funded research projects are not undertaken in isolation, but complement and “connect with” knowledge management on different topics.<sup>13</sup> With this in mind, many of the best researchers are well aware of the need to play active roles in international research networks and consortia.

The question of evaluating the outcome and impact of development research is also important. An evaluation was undertaken in 2013 to look at the outcome of research in the spheres of agriculture and natural resources.<sup>14</sup> Although this evaluation found that it was difficult to draw conclusions about the effects of research collaboration given the absence of a rigorous results framework for the competitive grants facility as well as the broad scope of funding, there were various recommendations for improvements. Some of these were subsequently taken on board in the 2014 strategic framework. These included strengthening research capacities in recipient countries and improving links (dialogue) between those responsible for research projects and for development assistance programmes (at embassies). The arrangements for research funded through window 2 also respond to this, in so far as Danish embassies and sector counsellors are expected to be closely involved in the advisory committees established in connection with each project.

It is also recognized that improved outreach and information dissemination in order to effectively communicate the results of research are of critical importance not least in terms of the targets specified in the SDGs. In Ghana and Tanzania, thematic sessions have been organized and a special effort was made to involve researchers in the preparation of the newly approved Danida country programme for Uganda. In addition to the publication of results in peer reviewed journals, many researchers also make use of a wide variety of media through which the results of their investigations are communicated. Renewed efforts are required to ensure that the results of research inform and influence policy making also within the MoFA.

Finally, with the inclusion of window 2, there is a risk of spreading limited resources very thinly across a very wide range of topics and countries. In this context, it will be particularly important to ensure that early lessons learned from the research projects associated with the SSC arrangements are examined, probably through a review to be undertaken in 2019. For research funded through window 1 it will be important to continue regular project monitoring and evaluation.

#### 4. Opportunities for enhancing development research

Currently, the budget frame for development research is negotiated on an annual basis. If a stable multi-annual allocation could be agreed for the coming years, some new initiatives could be considered. In this context the following opportunities have been identified.

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<sup>13</sup> Various thematic sessions have been organized in Ghana, Nepal and Tanzania over the years, bringing together researchers working on particular topics. DFC is also exploring how to promote dialogue, networking and learning in window 2 partner countries, starting with a “food quality knowledge forum” in Vietnam and a water resources platform in South Africa.

<sup>14</sup> [http://um.dk/en/danida-en/results/eval/Eval\\_reports/publicationdisplaypage/?publicationID=331F662B-9C06-41A8-812A-3040288F95C9](http://um.dk/en/danida-en/results/eval/Eval_reports/publicationdisplaypage/?publicationID=331F662B-9C06-41A8-812A-3040288F95C9)



As far as window 1 is concerned, the themes that form the basis for calls for research proposals are derived from the development and humanitarian assistance strategy ("the World 2030") as well as the priorities on the international development agenda (defined in the SDGs). They are not narrowly defined and are intended to encourage sector specific collaborative research involving partners working towards the same overall objectives, such as reducing gender inequalities or improving the development impacts of humanitarian aid.

In Ghana, Tanzania and Uganda the third phase of the BSU programme and the continued interest in research collaboration between the Danish universities and their partners represent a sound basis for ensuring both further capacity development and the generation of valuable research results in a range of sectors. Both the members of the Consultative Committee and the Danish embassies have important roles to play in these processes. In the 2018 application round it is intended to reserve funds for at least one project led by a Ghanaian institution and one led by a Tanzanian institution.

As noted above, window 2 has been launched on a pilot basis. There is however, an expectation that funds will be available for a second phase of some projects selected for funding from 2017-18. This means that a review and assessment of the experience and early results of this modality will need to be undertaken in the near future, together with the SSC programme coordination in the MoFA.

Various possibilities for co-financing development research and leveraging funds from other sources - notably from the European Commission (EU) - are also on the agenda. EU research funding represents a growing opportunity for Danish researchers and the EU rewards national alignment of research priorities with additional funding. Within development research, health, agriculture, energy, environment and climate change seem to be the areas of greatest interest from Danish researchers. It should be considered how Danish development research can contribute to this agenda by participating in joint calls or by contributing to network activities, which enhance Danish researchers' opportunities to be considered for EU research funding.

Finally, the investigation of possibilities for "climate smart" food and agricultural production systems is also high on the agenda, both in "the World 2030" and in terms of the SDGs. Thus, it would appear opportune to consider further contributions to international research, notably to the specialized institutions participating in the Consultative Group for International Agricultural Research (CGIAR). In this context, a renewed effort will be made to ensure that Danish universities and research institutions engage in partnerships with CGIAR programmes.

EVAL, February 2018

## **Annex A - selected recent research project highlights**

### **Transboundary Animal Diseases in East Africa**

This research collaboration involves the University of Copenhagen together with universities and ministries of agriculture in Uganda and Kenya. Research focuses on the transmission of foot and mouth disease (FMD) between livestock and wildlife. In addition to strengthening laboratory capacity, the research has resulted in valuable insights in the epidemiology of the disease in East Africa, with both international organisations and laboratories. One of the PhDs was involved in leading a team of FAO experts during FMD outbreaks in Uganda, which evolved into a vast FAO effort of vaccination, training, and laboratory establishment, as well as the development of a national strategy for a progressive control pathway of FMD.

<http://www.vet.dtu.dk/english/news/2013/03/graham-africa-diagnostics?id=29b448ff-0b23-4dca-99bd-c8b0fd7e2431>

[https://curis.ku.dk/ws/files/152992089/Foot\\_and\\_mouth\\_disease\\_virus\\_serotype\\_SAT\\_3\\_in\\_long\\_horned\\_ankole\\_calf\\_Uganda.pdf](https://curis.ku.dk/ws/files/152992089/Foot_and_mouth_disease_virus_serotype_SAT_3_in_long_horned_ankole_calf_Uganda.pdf)

### **Bandim Health project**

Bandim is a health and demographic survey site in Guinea-Bissau, established in cooperation with Statens Seruminstitut (SSI). A series of research and capacity building projects have been supported by Danida since 1997, totaling over 50 million DKK. The internationally recognized research has shown that vaccines not only protect against the target disease, but also modify susceptibility to unrelated infections. These so-called "non-specific effects" have major consequences for child survival. The results indicate that the international community can save the lives of millions of children in the world's poorest countries if the vaccination programs are optimized to take into account both specific and non-specific effects of vaccines. As a consequence, it has been recommended that the WHO vaccination program in low income countries should be changed. The WHO has reviewed the evidence and concluded that it would "keep a watch on the evidence of nonspecific effects of vaccination". The unspecific vaccine effects are now studied in a Danish population too. 33 Danish PhDs and hundreds of Danish MScs have been attached to the project, and these now constitute a significant part of the Danish resource base within tropical health and vaccination.

<https://www.bandim.org/>

### **TREATFOOD**

This is a childhood nutrition research project which has resulted in a recommendation to treat children with acute malnutrition with a lipid-based nutrient supplement called LNS (a fortified peanut butter) instead of the presently recommended corn-soy porridge. The study has had impact on the policies of governments and NGOs working with moderate to acute malnutrition. Advanced research methods were applied in remote rural areas where humanitarian organizations are working and not at university hospitals. This meant that the findings have had immediate practical impact on field practice.

<http://nexs.ku.dk/english/news/2017/new-research-to-treat-acute-malnutrition/>

## **Climate change and rural institutions (CCRI).**

This project involved the Danish Institute for International Studies (DIIS), Hue University of Agriculture and Forestry, Vietnam, the University of Zambia, Makerere University in Uganda and Forest Action Nepal (2012-2016). The project has provided analytical insight and theoretical understanding to national and international decision-makers with evidence-based analysis of the implications of climate change adaptation policies and practice for local institutions. It revealed the contrasts between the partner countries in how politics, history and roles of national and local government lead to enormous variations regarding how climate change is perceived. The country teams have had great success in engaging with meso-level authorities who have themselves been eager to understand how research can inform them about how to deal with an often amorphous set of climate change plans, policies and projects. The research revealed a major gap between efforts to 'push' new climate policies and limited recognition of the importance of adapting to local realities. Interest shown in these findings suggests that this will feed into other research and development practice, particularly as related to current Danish supported calls for 'new ways of working' to respond to disaster risk. The partners in Zambia presented the project and shared findings with the World Bank through the Pilot Programme for Resilience (PPCR).

## **Malaria and cancer research**

In cooperation with researchers in Africa, Danish malaria researchers have been engaged in different research and capacity building projects since 1990. A recent project has worked with the development of a malaria vaccine for pregnant women, as malaria during pregnancy is one of the principal reasons why many children in Africa have birth weights that are far too low. The research is co-funded with Danish biotechnological companies, European Union funds and the Innovation Fund Denmark. A major breakthrough is learning how the malaria parasite can enter the placenta, and a vaccine for pregnant women is now being tested. As a spin-off from these findings, the Danish researchers have applied the knowledge in cancer research, succeeding in using the same principles in cancer treatment. The combination of a malarial protein and the toxic cell turned out to be effective in seeking out the cancer cells and destroying them. This has created the basis for developing a new and promising treatment for cancer, and this has attracted enormous international attention and led to the establishment of biotech companies. The following institutions have participated in the research: the Centre for Medical Parasitology (National Hospital/University of Copenhagen), the Noguchi Memorial Institute for Medical Research at the University of Ghana and the Hohoe Municipal Hospital as well as the Kilimanjaro Christian Medical Centre (KCMC) and the National Institute for Medical Research, Tanzania.

<https://innovationsfonden.dk/en/press/malaria-vaccine-provides-hope-general-cure-cancer>

<http://nordiclifescience.org/making-malaria-protein-kill-cancer-cells/>

## **GREEiNSECT**

The green insect project is exploring how to use insects as a sustainable food and livestock feed source in Kenya. Focusing on crickets for human food and black soldier flies for animal feed, the project team has looked into areas such as food technology, gastronomy, consumer behavior, life-cycle assessment and food safety. The aim is to contribute with knowledge and fill in some of the gaps on how to start an industry and create a sustainable value chain around insect rearing. One of the partner universities in Kenya won a large World Bank grant to build an East African Center of Excellence for Insects and Food. The University of Copenhagen supports the development of a new curriculum to make a master's Degree programme and a PhD programme on insects for food and feed.

<http://greeinsect.ku.dk/>

### **“Green Growth” (micro-biological science of fermented food)**

Since 1991 Danida has been supporting a partnership between researchers in Denmark, Ghana, Burkina Faso, and Benin on the microbiological science of fermented food which aims at turning the regional food sectors into drivers of sustainable growth, improving food security and alleviating poverty.<sup>15</sup> The project aims at turning the traditional West African food sector into a driver of sustainable growth by improving production methods through use of starter cultures, to build biobanks to safeguard this microbiological heritage and sell the cultures, and to upgrade the West African food value chains and implement new business models. There is a commercial aspect of using the new the microorganisms isolated, which can grow at high temperatures, so that the fermentation process can be shortened. The Food Research Institute in Ghana became the first laboratory in West Africa to get accreditation to ISO 17025. Extensive scientific investigations (more than a hundred papers) have been published at international level on the microbiology of indigenous African fermented foods. The Danish commercial partner, Chr. Hansen finds that such a project is “a true example of creating shared value, as it has a great potential for both the international students, for their countries and for Chr. Hansen’s business”.

<https://www.chr-hansen.com/en/media/press-releases/2014/1/preserving-african-food-microorganisms-for-green-growth>

<http://greengrowth.dk/>, <http://dfcentre.com/long-term-north-south-research-collaboration/>

### **“Once we were warriors”**

The project entitled “Realizing Resources, Demobilization and Community Resilience Among Former Child Soldiers in Fragile States”, with DIGNITY - Danish Institute Against Torture and Aarhus University (2012-2017) explored how forcibly recruited children and youth in northern Uganda experienced and transcended war-related suffering during their violent abduction into the The Lord’s Resistance Army. The PhD thesis explored answers to the question “How do you keep on going?” and focused primarily on the individual responses to war-related suffering and perpetration of violence - and how these responses are socially constituted and negotiated in what is fleshed out as difficult homecoming processes in the post-war Acholi region. The qualitative methodology and the ongoing non-evaluative conversations about moral appraisal of past and present violence with the women and men in this study makes a contribution about how we perceive the moral capabilities of children and youth associated with armed forces who perpetrate violence.

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<sup>15</sup> Many institutions participate: the University of Copenhagen, the Danish Technological Institute (DTI) and the Centre for Ideas and Innovation in Denmark; the Food Research Institute (FRI), the Council for Scientific and Industrial Research, the University for Development Studies (UDS) and the Department of Applied Biology at the Faculty of Applied Sciences in Ghana; the Département Technologie Alimentaire (DTA), the Institut de Recherche en Sciences Appliquées et Technologies (IRSAT)/ Centre National de la Recherche Scientifique et Technologique (CNRST) in Burkina Faso and the University of Abomey-Calavi (UAC), Faculty of Agricultural Science, Benin.

## Annex B. Projects approved in 2017, Window 1 – Danida priority countries

Project coordinator	Institution	Project title
Claire Methven O'Brien	Danish Institute for Human Rights	Realising the SDGs: The role of responsible business (in Ghana and Kenya)
Dirk Lund Christensen	University of Copenhagen	Halting the dual Tuberculosis & Diabetes Epidemic, Tanzania
Helle Samuelson	University of Copenhagen	EMERGING EPIDEMICS: Improving Preparedness in Burkina Faso
Lars Hviid	University of Copenhagen	Accelerating the development of a malaria vaccine for Africa (Ghana)
Lasse Møller-Jensen	University of Copenhagen	Climate change resilience in urban mobility (Accra, Ghana)
Lotte Meinert	Aarhus University	Imagining Gender Futures in Uganda – IMAGENU
Peter Albrecht	Danish Institute for International Studies	Domestic Security Implications of UN Peacekeeping (Ghana)
Peter Furu	University of Copenhagen	Environmental sustainability of hotels on Zanzibar
Faith Philemon Mabiki	Sokoine University of Agriculture, Tanzania	Green Resources Innovations for Livelihood Improvement (Tanzania)
Iben Nathan	University of Copenhagen	Rights and Resilience in Kenya (RARE)
Peter Sanful	University of Energy and Natural Resources, Ghana	Building Resilience of Lake Bosomtwi to Climate Change

## Annex C. Projects approved in 2017 – window 2, growth and transition countries

Project coordinator	Institution	Project title
Alfredo Peña	Technical University of Denmark	Multi-scale and model-chain evaluation of wind atlases, Mexico
Anders Dalsgaard	University of Copenhagen	Health and Antibiotics in Vietnamese Pig Production
Ivan Nygaard	Technical University of Denmark	Tendering sustainable energy transitions (TENTRANS), South Africa
Jens Modvig	DIGNITY - Danish Institute Against Torture	Mental Health in Post-Conflict Colombia - Ways Ahead
Karsten Høgh Jensen	University of Copenhagen	Enhancing Sustainable Groundwater Use in South Africa
Maj Munch Andersen	Technical University of Denmark	Green & circular innovation for Kenyan companies
Niels Fold	University of Copenhagen	Socio-economic Benefits of Ecological Infrastructure, South Africa
Peter Skov	Technical University of Denmark	Sustainable Value-Chains: Aquaponics in Colombia
Simon Stisen	Geological Survey of Denmark and Greenland	Managed Aquifer Recharge in the North China Plain
Tine Mette Gammeltoft	University of Copenhagen	Informal Support for Diabetes Management in Vietnam
Torkel Gissel Nielsen	Technical University of Denmark	Research-based management of Gulf of Guinea