Evaluation of Danida Support to Development Research (2008-2018): Ghana Country Case Study Report

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Contents

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Abbreviations

AERC	African Economic Research Consortium
AU	African Union
BFT	Bistandsfaglig Tjeneste
BSU	Building Stronger Universities
CAADP	Comprehensive African Agricultural Development Programme
CBS	Copenhagen Business School
CGIAR	Consultative Group for International Agricultural Research
CSIR	Council for Scientific and Industrial Research
CODESRIA	Council for the Development of Social Science Research in Africa
DCISM	Danish Center for International Studies and Human Rights
DCRA	Danish Centre for Research Analysis
DFC	Danida Fellowship Centre
DIIS	Danish Institute for International Studies
DOAJ	Directory of Open Access Journals
DPs	Development Partners
EADI	European Association of Development Research and Training Institutes
ECOWAS	Economic Community of West African States
EQ	Evaluation Question
EVAL	Evaluation Department (MoFA, Denmark)
FAAP	Framework for African Agricultural Productivity
FAU	Development Research Association
FCG	Finnish Consulting Group
FFU	Consultative Committee for Development Research
GAAS	Ghana Academy of Arts and Sciences
GAEC	Ghana Atomic Energy Commission
GDP	Gross Domestic Product
GERD	Gross Expenditure on Research and Development
GETFund	Ghana Education Trust Fund
HRB	Human Rights-Based
IDRC	International Development Research Centre (Canada)
KFU	Kvalitet og Faglighed I Udviklingssamarbejdet
KNUST	Kwame Nkrumah University of Science and Technology
ICT	Information and Communications Technologies
IEA	Institute of Economic Affairs

IPR	Intellectual Property Rights
MDGs	Millennium Development Goals
MESTI	Ministry of Environment, Science and Technology
NCTE	National Council for Tertiary Education
NEPAD	New Partnership for Africa's Development
MoFA	Ministry of Foreign Affairs
OAU	Organisation of African Unity
OH	Outcome Harvesting
PI	Research project coordinator
PRCP	Pilot Research Cooperation Programme
QA	Quality Assurance
QAM	Quality Assurance Manager
QMS	Quality Management System
RQ+	Research Quality Plus
RUF	Rådet for Udviklingsforskning
S&T	Science and Technology
SDGs	Sustainable Development Goals
SSC	Strategic Sector Cooperation
STI	Science, Technology and Innovation
STISA	Science, Technology and Innovation Strategy for Africa
TORs	Terms of Reference
TL	Team Leader
TQS	Technical Quality Service
TSA	Tjeneste for Sektorielle Anliggende
TVET	Technology and technical and vocational education and training
UCC	University of Cape Coast
UENR	University of Energy and Natural Resources
UD	University of Denmark
UG	University of Ghana
UFE	Utilization-focused Evaluation
UFT	Udviklingsfaglig Tjenestest
UNEG	United Nations Evaluation Group
UNU-WIDER	World Institute for Economic Development Research
WoS	Web of Science
WTO	World Trade Organisation

Executive summary

This country case study in Ghana was a part of an evaluation of Danida's support to development research over the period 2008-2018. The aim of the case study was to support the overall evaluation by providing in-depth information and analysis on the implementation and results of key grants in Ghana during the period under evaluation. To achieve its aims, the study used systematic document reviews and other analytical methods in combination with semi-structured group and individual interviews with 73 interviewees.

Danida's grant portfolio to Ghana is dominated by large, Danish-coordinated development research projects with Ghanaian partners (54% of all funding), followed by Ghanaian-coordinated research projects (17.1%) and the broad "Building Stronger Universities" (BSU) programmes (17%). The research projects typically involve various capacity building components, and have been focused on Ghanaian national priorities. The BSU programme is in its third iteration, and currently focuses on long-term development, capacity building, and partnerships, through a large number of different activities.

The country case study found that both North- and South-driven development research projects have been very well aligned with Ghana's policy and strategy environments, as well as with the sustainable development goals. The sustainability and societal impact of research cooperation does, however, suffer from insufficient resources for dissemination, advocacy, field-testing, commercialisation, and upscaling of products and services. Most projects are won by large, established institutions, which on the one hand, ensures there is a facilitating environment, but on the other hand, raises questions about diminishing returns. The last two iterations of BSU supports the universities' visions very well, but their numerous small activities risk spreading resources too thin.

Throughout the modalities, projects have typically achieved what they sought to achieve, but no-cost delays have been frequent. The quality of publications in the sample research projects generally ranged from good to excellent, but their quantity varied greatly between projects. Although research grant applications are evaluated both for their relevance to strategic development issues and for their academic credentials, the latter criteria heavily dominate the selection process, which has promoted high academic quality of outcomes but also undermined the projects' practical impact. Many BSU activities have effectively attained their goals and have supported the universities' institutional visions, but BSU's lack of focus and limited synergy between BSU and other Danida initiatives undermines its impact.

Danida's approach to capacity building complements the approaches of other funders, but Danida is just one player among many funders of development research, and a minor player in capacity building. Among those who fund capacity building and development research, Danida does not have a distinctively unique profile. Despite many efforts to harmonize and coordinate initiatives with other donors, synergies are lost to problems with identifying parallel or overlapping programmes by other donors, as well as coordination between Danida's own modalities.

The Danish and Ghanaian partners share a feeling of equal partnership, yet both North- and South-driven research collaborations have some lingering tensions, which are absent in BSU. Ghanaian partners do not straightforwardly favour either type of collaboration (North-driven or South-driven): while Ghanaian coordination has its perks and benefits, it greatly increases workload, responsibility, and administrative burden. Danida's approach to monitoring and evaluation gathered praise across the borders, and is compatible with the universities' own systems.

Ghanaian partners considered Danida support to have resulted in clear benefits to the institutions involved. Similar lists of dozens of positive outcomes were repeated across stakeholder groups. However, the impact of Danida's support to policymaking was more modest, and successful industry initiatives, social actions, and spin-offs were rare. Some Ghanaian policymakers envision a clear role for development research, which offers a clear venue for increasing the impact of Danida's support to development research.

The country case study suggests nine discussion points for future development of Danida's support to development research and capacity building: (1) a stronger commitment to the principles of development studies, (2) increasing support to smaller and upcoming institutions, (3) re-balancing between the academic and strategic value in the grant selection process, (4) redistributing the project selection across more fields and departments, (5) shifting the burden of coordination and harmonization to applicants, (6) earmarking a percentage of funds to dissemination, advocacy, promotion, or commercialization, (7) clearer profiling Danida as not just another generic research grant agency, (8) reducing the number of activities and modalities, and (9) investing into sustainability of research outcomes. The discussion points do not form a single unified direction of development, and some of them contradict each other. Rather, the discussion points offer food for thought for programme development in the future.

1 The Case Study

1.1 Introduction

Danida's 30 years of funding to development research have seen a number of modalities and funding channels, with two constant overarching objectives: contributing to generation of new knowledge, and strengthening the capacities of institutions involved in development research. Danida's broad conception of development research has enabled support to span over a large number of fields, such as health, food and agriculture, forestry, water and energy, human rights, governance, security, and economic development.

In order to determine the most relevant, appropriate and effective means of generating new knowledge and strengthening research capacities that will be of value for developing countries, the Evaluation Department (EVAL) of the Ministry of Foreign Affairs (MoFA) commissioned an evaluation of support to development research over the period 2008-2018. The evaluation is intended to track and assess the results of funding over a ten-year period and to distil strategic issues to inform recommendations on the way forward for development research funding. It is to provide insights into how to ensure high quality research and to foster the most productive research partnerships. It is also to facilitate prioritisation of development research and ensure responsiveness to the Sustainable Development Goals (SDGs) that define global agendas for economic, social, and environmental policymaking. These are underpinned by the United Nations' aim to leave no-one behind, by focusing research efforts on effectively responding to critical development issues in low income, "fragile" countries and regions that risk being left behind. The evaluation, therefore, looks backwards to find credible evidence of approaches, performance, and influences on success in order to make assessments and provide lessons and recommendations that can inform future strategies that aim to maximise the value of development research for development impact.

Accordingly, the specific objectives of the evaluation are to:

- document the achievements of development research funding since 2008, including all modalities;
- on the basis of an analysis of the Danish and international context for development research, examine the results of funding development research since 2008, with particular focus on the relevance, outcomes and impact; and
- draft recommendations for future funding of development research, indicating how to maximize quality, capacity development partnerships and policy impact.

As part of the evaluation, three country studies were undertaken in Ghana, Uganda, and Vietnam. They were identified by EVAL as having received significant funding across the different funding modalities during the period under review and provided opportunities to consider research funding by other agencies and donors as well as research results arising from participation in international programmes. FCG Sweden was contracted to conduct the evaluation.

This report on the Ghana country case study forms one part of the overall evaluation, and it supports the overall evaluation's components 2 (RQ+ research quality assessment), 3 (outcome

harvesting), and 4 (capacity development). The aim of the Ghana case study was to help deepen the analyses from the cross-country portfolio reviews in each component through a focus on the implementation and results of key grants in Ghana during the period under evaluation. It gathered primary data from purposefully sampled interviews and facilitated group discussions, supplemented by the transnational survey and interviews as well as additional secondary information collected from the sites that appeared difficult to access remotely.

The case study was undertaken by Matti Tedre (Finland) and Adom Ghartey (Ghana).

1.2 Approach

The full evaluation approach and methodology is described in the main evaluation report and summarised here.

The evaluation was undertaken using the OECD/DAC evaluation criteria, including relevance, effectiveness, efficiency, and impact, and framed by a systems perspective. The main focus was on the results of the research and capacity building projects funded by Danida since 2008. Twenty evaluation questions and four evaluation criteria identified by EVAL constituted the nexus of the commissioned evaluation. The approach to the evaluation was also directed by the purpose and intended use of the evaluation and the nature and scope of the evaluation object. The research endeavours of the grant recipients during the period in relation to the relevance, quality, achievements and progress towards impact were also interrogated. The main source of information for the evaluation was field data collection in Ghana across the stakeholder groups and projects, and documentation of projects, funding modalities, and internal programme documents.

1.3 Methodology

The evaluation was structured around an evaluation matrix that captured the evaluation criteria with respect to relevance, effectiveness, efficiency, and impact, with the evaluation questions aligned to those criteria. The project selection for evaluation was based on the premise that the four funding windows (FFU North, FFU South, FFU Window 2 and BSU I, II and III) lend themselves to more intensive data collection for the case study. The four selected windows had good potential for robust information, although the most recent ones had less potential for determining outcomes and impacts. The country case study looked at i) each window's value proposition (from different perspectives) in the light of the overall objectives of Danida's development research funding, including its focus on capacity strengthening; ii) key contributions and outcomes; iii) important influencing factors -

Key stakeholders / beneficiaries	
Researchers and PhD students	X
Senior and junior mentors / staff in universities	X
Training, workshop, and working group participants	X
Course implementers and curriculum designers	X
Network partners	(x)
Project-level management	
Project coordinators and PIs (North and South)	X
Policymaking intermediaries (South)	X
University management (South)	(x)
Think tanks / Private research institutes / NGOs / etc.	(x)
The Rector's Conference of UD / Secretariat	
Program management (e.g. FFU, DFC)	(x)
IT staff	
Governmental stakeholders	
National coordinators (South)	(x)
Embassy personnel responsible (Denmark)	X
Ministry of Foreign Affairs / Danida (Denmark)	
Government institutions (Denmark)	
Parastatals / public institutions (Denmark)	X
Ministries / policymakers involved (South)	(x)
Parastatals / research councils / national commissions	(x)
Main funders of research (South)	
Other donors / co-funders aside from Danida	

Table 1: Primary interviewee groups as listed in the inception report

bottlenecks and facilitators of progress, iv) apparent success factors, and v) implications for success and sustainability in the long term.

The country case study involved a systematic document review, portfolio mapping and review, context analysis, stakeholder mapping, semi-structured purposive interviews, facilitated group discussions, elements of outcomes harvesting, and RQ+ analysis and bibliometric analyses. The evaluation entailed examination of documents and reports including individual research project progress and completion reports. Semi-structured interviews and group interviews were conducted with key informant groups ranging from beneficiaries to project management and government stakeholders. Stakeholder groups were mapped out with respect to their roles in Danida's development research support. Table 1 presents the planned primary interviewee groups involved in the study (See Annex 1 for complete list). An appropriate balance was sought between Danish and Ghanaian stakeholders. The stakeholders in Denmark included research institutions, and those responsible for managing and administering development research. The stakeholders for Ghana included the Danish embassy, the National Screening Mechanisms, universities and research institutions, ministries and policy makers, and research councils or national commissions. The full list of the 73 interviewees is included as Appendix 1.

The data collection throughout the evaluation aimed to uncover multiple, potentially contrasting perspectives on the questions at hand. Data collection methods and questions were structured to ensure sufficient qualitative and perceptual information to develop an understanding of situations, balanced by quantitative and factual data that facilitated understanding and triangulation. Elements of outcomes harvesting methodology were used to trace influences towards change or outcome descriptions beyond the project documentation on the use of research outside academia. Data collection and analysis rubrics were used to assess the credibility of evidence on key aspects of the evaluation and facilitated nuanced assessments that brought together qualitative and quantitative data. Systematic triangulation was conducted in order to ensure the credibility of the evidence (see Section 1.5 below). The Research Quality Plus (RQ+) framework and bibliometric analyses for the main evaluation report informed the data collection for the Ghana case study in order to provide direct feedback from the field to the main report.

1.4   Opportunities, challenges and limitations

The document study, context mapping, and interactions with EVAL and DFC helped to identify the constituents of the research portfolio that formed the object of the evaluation. The portfolio mapping included all projects from 2008 to 2018 (completed and on-going projects). While a full-fledged examination of issues of sustainability was not feasible, they were examined to facilitate understanding of the extent to which efforts have been conceptualized and implemented.

The country case study was retrospective, yet forward-looking. Recommendations follow from findings and conclusions. Recommendations have been positioned within the perspective of the evolution of the changing contexts in the past, the most recent situation, and the dynamics that are likely to shape the future. The case study, therefore, placed evaluative analyses and recommendations within the ambitions of the SDGs and other frameworks central to Danida's work. It has also considered past strategies and their effect on success.

Kick-off and debriefing workshops with stakeholders in Ghana were not organized due to the geographical spread of the stakeholders (Cape Coast, Accra, and Kumasi), and time limitations. A few stakeholders in Ghana and Denmark were reluctant to participate in interviews, but that did not impact the quality of the results and evidence as the majority of the significant stakeholders were reached.

1.5 Quality of the evidence

The guiding principles of the evaluation that informed the process and content of the case study included: i) Independence that safeguarded the evaluation from external influences and undue pressure; ii) Impartiality that ensured that findings were based on evidence from reliable and diverse sources, with triangulation to strengthen credibility; iii) Sensitivity that enabled the evaluation team to be sensitive to our own biases as well as to local values and cultures, and to voices, norms and knowledge systems that were different; iv) Confidentiality that protected individual informants by respecting confidentiality and corresponding with GDPR regulations; v) Transparency in applying the methodology transparently and consistently; vi) User-focused by understanding and working in close collaboration with Danida and key stakeholders, yet not sacrificing rigor and impartiality; vii) Balance in focusing on both the positive and the negative, considering both strengths and particular challenges, and contributing

Table 2: RAG rating of evidence per evaluation matrix item

constructively towards a positive future; and viii) Ambition and realism that added, with focus and depth, to the existing foundation of knowledge and insights that can help Danida and related organisations to prepare for the coming decade.
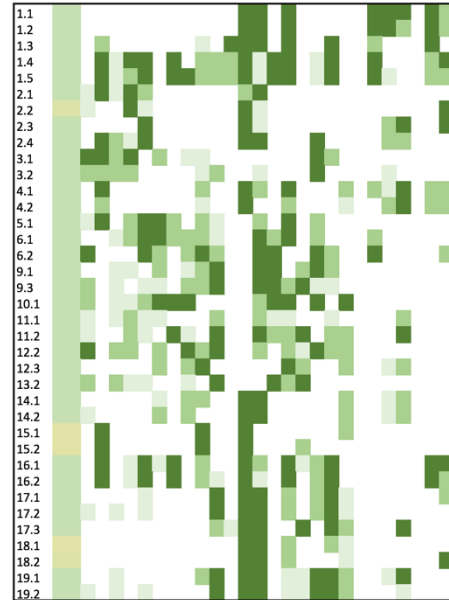
For the interview data, an evidence assessment rubric (Table 2) was used to help triangulate and assess the credibility of key aspects of the evidence. Each row in Table 2 corresponds to evaluation matrix rows relevant to the Ghana case study. The first and second columns list evaluation matrix items and the strength of evidence towards the items; the rest of the columns correspond to interview data from Ghanaian stakeholders. Danish stakeholders' interview data were analysed separately. An engagement and communication strategy was used to ensure regular stakeholder engagements at key moments to support the veracity and acceptance of the findings, conclusions, and recommendations.

2 The Context for Development Research in Ghana

2.1 Key trends in development

Ghana is located on the Atlantic Ocean and borders Togo, Cote d'Ivoire, and Burkina Faso. Its population was about 29.6 million in 2018 and is estimated to reach 30.42 million in 2019. The annual population growth rate of 2.15% is forecast to drop below 2% by 2025, but even this is unsustainable, considering the scarce food and other resources. Ghana has made progress in formulating and implementing sustainable development (SD) strategies since the 1992 Rio conference, with considerable knowledge and understanding of SD. Institutions for SD have been established and SD is implemented as a tool for development. However, environmental depletion, degradation, and pollution still pose major challenges. The country only receives a small share of revenue from natural resource exploitation due to weak value addition to primary products with challenges in job creation, education, water and sanitation, urbanisation and health. Ghana is transitioning to green economy in the areas of green budgeting, agriculture, energy, forests, water, transport, urban environmental management, roads, buildings, industrial installations, finance, manufacturing, and tourism.

Difficulties in achieving SD have emerged, however. A list of such difficulties from a national assessment by the Ministry of Environment, Science and Technology included climate change, desertification, coastal erosion, energy crisis, transparency in the management of mineral and oil resources, biodiversity and ecosystem loss, as well as food insecurity, graduate unemployment, globalisation, and urbanisation. Additionally, there is inadequate ownership, commitment, governance and participation; poor integration and coordination among key actors; weak technical, institutional and financial capacity; political and policy inconsistencies; lack of harmony between national, regional and district policies; inability to monitor and evaluate the process; as well as inadequate alignment of development assistance objectives to the priorities of the country. Addressing these challenges requires building human and institutional capacities for policy formulation, implementation, monitoring, and enforcement of legislation.

Politically, Ghana is a democracy that has made major strides toward a multi-party system in the past two decades, with its independent judiciary winning public trust. Ghana consistently ranks in the top three countries in Africa for freedom of speech and press freedom, with strong broadcast media providing the country with social capital. Elections are generally free and fair with high voter participation rates. Two political parties – the New Patriotic Party (NPP) and the National Democratic Congress (NDC) – have dominated the political landscape since 1992. Ethnic affiliations play less a role in Ghanaian politics than in most other countries on the continent. Party affiliations are strong and passionate but are rarely based on the ethnicity of the political candidates. Neither party is associated with policies that consistently favour a particular socio-economic group or economic activity. Ghana's political landscape provides good avenues for development research to inform its policy decisions.

Ghana's attainment of middle-income status in November 2011 – when per capita Gross Domestic Product (GDP) surpassed USD 1,000, from a starting point of USD 400 per capita in the 1990s – is an achievement that provides the foundations for its next goal of attaining a per

capita GDP of USD 3,000. It also sets the tone for achieving other policy targets, particularly the policy of "Ghana Beyond Aid." Ghana's economic growth accelerated to 8% in 2017 from the 2016 level of 3.7%, driven by the mining and oil sectors, making it the second-fastest growing African economy after Ethiopia. Headline inflation fell from close to 20% in 2016 to 9.6% in July 2018. Industry growth is expected to improve to 9.7%; the agriculture sector is expected to grow by 7.3%. The service sector growth, however, is projected to be 6.1%, slightly below the 2018 projection of 6.2%. The rise of the extractive industries appeared to be constraining agriculture sector growth as an emergent sign of the Dutch Disease. Nevertheless, the agriculture sector remains an important contributor to Ghana's export earnings and a major source of inputs to the manufacturing sector.

Two-thirds of non-oil manufacturing depends on agriculture for raw materials as agriculture and agribusiness account for a major share of all economic activities. Cocoa accounts for 25% of total foreign exchange earnings and Ghana accounts for about 20% of global cocoa exports. Agriculture is also the most important sector for jobs and livelihoods in the rural areas, with over 70% of employment residing in rural areas. The structure of the agriculture sector continues to be dominated by primary production, with limited agro-processing and value-addition. Little progress has been made in pulling labour out of agriculture into other productive and industrial jobs due to low productivity of labour in agriculture as well as limited dynamism in the non-agriculture private sector. These economic, social, political, environmental and technological trends call for research in improving and sustaining Ghana's socio-economic development.

2.2   The policy context for development research

Ghana's aspiration of achieving policy targets, particularly the policy of "Ghana Beyond Aid" is premised on a solid base of research contextualised in science, technology, and innovation (STI). This is a cue that Ghana takes from the progress made by industrialised and newly industrialised countries, including Korea, China, and India.[1] Similar to most developing countries, Ghana is saddled with numerous development challenges across most sectors of the economy which are hindering improvement in the society and the quality of life of the people. To facilitate constructive and structured harnessing of STI, a national STI policy was formulated for 2017-2020.

The STI policy [2]

Ghana's STI policy projects a vision of Ghana transformed to a developed country with STI as the key driver. The policy is to build a strong STI capacity to drive social and economic development for sustainable transformation of the economy. It intends to migrate the country from the current low science and technology (S&T) or research and development (R&D) practices and worldview associated with a society of tradition-bound culture, to an STI and knowledge-based society functioning based on high levels of productivity in all sectors of the economy. The policy projects a future where STI capability underpins sustainable production and processing of natural resource endowments while empowering the knowledge base to participate actively in the production of high-technology goods and services for local consumption and

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[1] Ministry of Environment, Science, Technology and Innovation [MESTI] (2017). National Science, Technology, and Innovation Policy (2017-2020), Accra.

[2] MESTI (2017). National Science, Technology and Innovation Policy (2017-2020), Accra.

export. The policy has been contextualised and fully integrated into a national development strategy which fully harnesses the nation's total S&T capacity to achieve national objectives for wealth creation, poverty reduction, enterprise competitiveness, sustainable environmental management, and industrial growth. The objectives of the policy are to:

- create the conditions for the improvement of S&T infrastructure for R&D and innovation;
- ensure that STI supports Ghana's trade and export drive for greater competitiveness;
- facilitate mastering scientific and technological capabilities by a critical mass of the products of all institutions;
- provide a framework for inter-institutional efforts in developing STI and programmes in all sectors of the economy to provide the basic needs of the society; and
- promote a science and technology culture in the society.

The effective implementation of the STI policy is premised on the key principles of relevance to the country's development, cost-effectiveness, realism regarding targets, synergy (being holistic with a multi-disciplinary and cross-sectoral approach to problem-solving), and partnerships involving strategic collaboration with all local and foreign stakeholders, particularly the private sector. It is also premised on job and wealth creation - focused on the demand-driven potential of the market and society, as well as sustainability by committing to the SDGs.

STI Policy's Responsiveness to the Global and Ghana's Development Research Agenda

The priority themes underpinning Ghana's STI Policy constitute the agenda for the Ministry of Environment, Science, Technology and Innovation (MESTI). These include promoting competitiveness in productive sectors of the economy; creating job opportunities and employment; expanding industrialisation; enhancing the quality of life through innovation; developing world-class scientific and technological human capital; expanding infrastructure for research and development (R&D); promoting an information society; optimising the sustainable use of the natural and environmental resources; as well as commercialising research findings.

In addition to the SDGs, Ghana's efforts to articulate the policy framework for STI application is linked to the attainment of sub-regional commitments as outlined in the Economic Community of West African States (ECOWAS) Revised Treaty as well as the New Partnership for Africa's Development (NEPAD). The ECOWAS Revised Treaty requires member states to ensure appropriate application of S&T to the development of agriculture, transport and communications, industry, health and hygiene, energy, education, manpower and the conservation of the environment. The NEPAD S&T Consolidated Plan of Action (2006-2010) sets forth a series of collective actions to develop and use S&T for the socio-economic transformation of the continent and its integration into the world economy. The strategic role of STI in Africa's development has been further elaborated in the STI Strategy for Africa (STISA-2024) which seeks to guide the development and application of STI in Africa by accelerating Africa's transition to an innovation-led, knowledge-based economy.[3] For Ghana, the formulation of strategic policies and programmes to actualise the STISA-2024 vision is not only to conform to the expectation of the African Union (AU), but also to provide the strategic basis for

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[3] African Union Commission (2014) Science, Technology and Innovation Strategy for Africa (STISA-2024), AUC, Addis Ababa.

responding to the African Union's Agenda 2063, other global policies and strategies as well as SD.

2.3 The national system of innovation

Multi-dimensional factors, including the policy environment, economic, political, social and technological factors that influence the scientific sector in the country have informed the national systems of innovation in Ghana. As noted by Carden et al.,[4] the institutional capacity of research institutions in Africa remain relatively weak due to limited opportunities for African research institutions to make their own choices and the lack of resources to support their activities and operations. The principal thrust of the STI Policy is to ensure that development research drives all sectors of the economy. Accordingly, sector policies, programmes, and strategies in agriculture, health, education, environment, energy, trade, industry, natural resources, human settlements, and ICT are driven by sector-specific STI programmes and activities.

MESTI, under the Presidency, is responsible for the management and implementation of Ghana's S&T policies. It has the primary responsibility for the STI policy and manages its implementation. The ministry is to oversee and coordinate the activities and programmes of the Council for Scientific and Industrial Research (CSIR) with its 13 research institutes, the Ghana Atomic Energy Commission (GAEC), the Environmental Protection Agency, and the Town and Country Planning Department, who have collective responsibility for applied R&D in Ghana. This mandate will be executed through the organisations operating under its auspices and where necessary, through other relevant organisations. The cabinet minister as the political head of the ministry provides the needed leadership to connect with other ministries and organisations for STI application and development in the country. The STI Directorate of MESTI, responsible for policy formulation and the development of appropriate STI strategies and programmes, is its nerve centre.

An apex STI body – the Presidential Advisory Council for STI – is to be established to ensure strong advocacy for STI in Ghana, to provide advice to the President, and to ensure coordination and harmonisation of the STI policy and programmes. This body serves as a thinktank with representation from the Ghana Academy of Arts and Sciences (GAAS), CSIR, GAEC, universities, professional S&T-based associations, and others, to provide STI oversight and advice for policy formulation and implementation. In order to address the challenges with STI funding, provisions have been made to establish a National STI Fund to incorporate support for innovation in its sphere of operations; work to ensure the allocation of a minimum of 1% of Ghana's GDP to support the S&T sector; as well as introduce an attractive tax incentive scheme to benefit contributors to the STI Fund or other R&D activities.

To ensure that the implementation of STI is on course, mechanisms are in place for monitoring and evaluating performance by all actors at the various levels of the STI system. The development and utilisation of STI capabilities will be promoted by designing and implementing comprehensive training programmes to develop indigenous capabilities for the adaptation, absorption, and mastery of imported technologies, skills, and know-how for basic research, R&D, and information management. New and emerging technologies, commercialisation and

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[4] Carden et al. (2019). Strengthening research institutions: Learning from doing. Mastercard Foundation, Using Evidence Inc.

dissemination of research results will be strengthened and expanded. S&T capacity building interventions aimed at nurturing innovative development are to be provided to attract, retrain, motivate and retain indigenous scientific, technical and technological skills and know-how. Women's participation in science and technology will be promoted while international and local cooperation and linkages are fostered and strengthened through exchanges, partnerships, and networking.

2.4   Development research in Ghana

Following independence in 1957, Ghana recognized the compelling need to create a national capacity for research. Accordingly, a number of key scientific institutions, including the GAAS, CSIR, GAEC, and Kwame Nkrumah University of Science and Technology (KNUST) were established to confront the task of building a scientific and technological base for the country's socio-economic development. The universities performed the crucial task of training the high level human resources to run and manage them.[5] As of 2017, Ghana had 10 public and 74 private universities.[6] With these universities, eight technical universities, two polytechnics, over 500 senior high schools, 23 technical institutes, and a large informal sector where most artisanal skills training take place, Ghana has a substantial education and training capacity for human resource development in research, including development research. However, inadequate staffing, laboratory, and workshop facilities, have limited the capacity of these institutions to produce the number and quality of high-level scientists, engineers, technologists, technicians, and artisans required to support the system.[7]

Unfortunately, the premium placed on science and technology (S&T) as the main drivers of development by policymakers and managers of the nation's resources, has been low. The proportion of Ghana's budget allocated to STI has been low, fluctuating between 0.3% and 0.5% of GDP, well below the target of 1% prescribed at the Summit of African Heads of State of the Organisation of African Unity (OAU) in 1980 under the Lagos Plan of Action. This plan was adopted by the AU as a prerequisite for realising the goals and objectives of NEPAD. In contrast, South East Asian countries such as Korea, Singapore and Taiwan have spent 2% of GDP on S&T.[8] According to Bartels et al.,[9] in terms of innovation, Ghana dropped from #96 out of 141 in 2014 to #108 out of 143 in 2015 in the global innovation index. Ghana's gross expenditure on research and development (GERD) as a percentage of GDP rose from 0.23 % in 2007 to 0.38 % in 2010. In terms of researchers per million people, Ghana ranked #102 out of 143 in 2014 and #94 out of 141 in 2015, indicating a positive improvement in the creation of skilled human capital[10]. Other innovation-related indicators include ICT access where between 2014 and 2015, Ghana moved from #115 out of 143 to #92 out of 141.

Developments in S&T with wide applications, such as innovations in ICT and internet applications, as well as emerging trends in biotechnology and nanotechnology, made it imperative for Ghana to review its S&T policy and to formulate a more comprehensive and dynamic

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[5] MESTI (2017), National Science, Technology and Innovation Policy (2017-2020), Accra.
[6] National Accreditation Board (as of 4th May 2017, but informal checks indicate an increase to 11 public and 81 private universities in 2019; http://www.nab.gov.gh/
[7] MESTI (2017. National Science, Technology and Innovation Policy (2017-2020), Accra.
[8] MESTI (2017), National Science, Technology and Innovation Policy (2017-2020), Accra.
[9] Bartels et al. (2016). Barriers to innovation: the case of Ghana and implications for developing countries. UNIDO, Vienna: Triple Helix (2016) 3:12 DOI 10.1186/s40604-016-0040-y
[10] World Bank data on researchers per million people is incomplete for Ghana.

approach to building a more responsive scientific and technological capacity. The global trade environment dominated by rapidly emerging technologies and processes is edging out local African enterprises. The consequences of climate change regarding food crises and threats to human welfare are affecting Ghana just as they affect the world ecosystem. The opening up of trade opportunities in the global markets in general and the mounting requirements of the World Trade Organisation (WTO) Treaty on Technical Barriers to Trade (Uruguay Rounds of Talks) pose opportunities and risks to the developing economy of Ghana. Local enterprises can still be competitive in the global trade environment with enhanced innovation and scientific content in their operations in all areas.[11]

Key actors in development research

The nexus of development research (depending on how "development research" is defined) in Ghana is mainly constituted by universities and research institutions (the majority of which fall under the 13 institutes of CSIR). The private sector, civil society organisations and development partners (DPs) play complementary roles in promoting development research in various forms, including advocacy, lobbying, and funding. Ghana's 1992 Constitution envisions the need to provide educational facilities at all levels and to make the facilities available to all citizens to develop the capacity for development research.[12] One of the key challenges organisations in Africa including Ghana face is finance, coupled with the inability of the institutions to make independent decisions about their development research work. Finance is intrinsically linked to mission achievement, research quality, staff retention and governance. Many graduate students fail to complete their programmes due to their inability to finance the research component, thus affecting the opportunities and the overall quality of the PhD programme.[13]

Financing development research

Currently, development-related research funding in Ghana is mainly provided through tertiary education using a variety of sources. The main ones are grants from the Government of Ghana, the Ghana Education Trust Fund (GETFund), development partners, internally generated funds by the institutions and contributions from students and private sector. GETFund has been a major source of funds for infrastructure development since its establishment in 2000 by an Act of Parliament to provide funding to supplement government efforts for the provision of educational infrastructure and facilities. The Fund is supported with contributions equivalent to 2.5% or such a percentage not being less than 2.5% of the Value Added Tax (VAT) rate. Tertiary institutions receive their budgetary allocations from the government through the National Council for Tertiary Education (NCTE). Education sector expenditure from 2009 to 2015, accounts for an average of 23.7% of government expenditure. Over the same period, an average of 19.1% of the education sector budget was allocated to the tertiary sector. Funding models for higher education are designed to facilitate the implementation of public policy objectives in higher education, and thereby, influence the outputs and outcomes of development research.[14]

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[11] MESTI (2017), National Science, Technology and Innovation Policy (2017-2020), Accra.
[12] Government of Ghana (1992). Constitution of the Republic of Ghana. Accra, Ghana Publishing Corporation.
[13] Carden et al. (2019), Strengthening research institutions: Learning from doing. Mastercard Foundation, Using Evidence Inc.
[14] Newman, E. and Duwiejua, M. (2015). Towards innovative models for funding higher education in Africa – The case in Ghana in Okebukola, P. A. (ed) (2015). Towards Innovative Models in Africa, pp. 1-23. Association of African Universities Press, Accra.

According to Newman and Duwiejua[15], the cost of higher education keeps escalating and government expenditure in relative terms is diminishing. Over the period 2011 to 2015, the funding gap in higher education has been in the range of 39.7 to 79% (2011=39.7%; 2012=79%; 2013=49.2%; 2014=46.6%; 2015=41.0%). The funding gap of 79% in 2012 was due to excessive demands of institutions on the GETFund for infrastructure with no mention of the quantity and quality of development research. The current models for fund allocation in Ghana are inadequate to respond to the development research needs of the universities and research institutions. This has contributed to an overreliance on donor funding, internally generated funds, and other sources that are not sustainable for funding research.

Institutional orientations for STI policy implementation

Although the STI policy is yet to be operationalised, all the ministries, departments, and agencies are guided by the tenets of the policy in developing their vision and strategic framework, plans, and development research agenda. The mandate, vision, and strategic framework of MESTI, MoE, the universities, CSIR, and non-state institutions such as the Institute of Economic Affairs (IEA) attest to this. Since 2010, all the state universities have established research and innovation centres to cater for their research management and funding needs. In order to facilitate development research in Ghana, most DPs, including the World Bank, CIDA, Danida, the UKAid, European Union, GIZ, IDRC, etc. support development research initiatives.

Research has, however, shown that even though Ghana has a strong record of periodically producing and disseminating data from population-based and economic surveys, data from civil economic registers and other administrative systems and processes – records from health centres, schools or water utility companies – are not routinely exploited and made available for public policymaking or planning. Accessibility and use of data are yet to be prioritised in Ghana in order to make the required data available for diverse uses, including the regular tracking of development progress and international commitments such as the UNSDGs, and the Africa Union's Agenda 2063.[16] Development research constitutes an important tool for development partners, including Danida to deliver responsive development assistance and remains essential in the global fight to eradicate poverty and inequality and to promote sustainable development. DPs have an obligation to align development research with the overall objectives of their Governments' strategy for development cooperation and humanitarian action, The World 2030, i.e. promotion of human rights, democracy, gender equality, sustainable development, peace and stability.[17]

2.5 Implications for the evaluation of Danida's development research

The key trends in development in Ghana (for example, economic, political, social, environmental, and technological development) point to the difficulties confronting Ghana in its quest to achieve sustainable development. Addressing these challenges require building human and institutional capacities for research, policy formulation, implementation, monitoring, and enforcement of legislation. Ghana's political landscape provides good avenues for development research to inform its policy decisions, and for achieving other policy targets, particularly the policy of

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[15] Newman, E. and Duwiejua, M. (2015). Towards innovative models for funding higher education in Africa – The case in Ghana in Okebukola, P. A. (ed) (2015). Towards Innovative Models in Africa, pp. 1-23. Association of African Universities Press, Accra.

[16] http://www.ghana.gov.gh/index.php/media-center/features/3890-statistics-must-receive-attention-in-national-development-planning

[17] *The World 2030: Denmark's Strategy for Development Cooperation and Humanitarian Action*. Ministry of Foreign Affairs of Denmark, January 2017.

"Ghana Beyond Aid." The national STI policy provides a frame for ensuring that development research drives all sectors of the economy. However, the national systems of innovation and the institutional capacity of research institutions in Ghana remains relatively weak due to limited opportunities for the research institutions to make their own choices and the lack of resources to support their activities and operations. Inadequate staffing, laboratory and workshop facilities have limited the capacity of these institutions to produce the number and quality of high level scientists, engineers, technologists, technicians, and artisans required to support the system. Women participation in science and technology needs to be promoted, while international and local cooperation and linkages are fostered and strengthened through exchanges, partnerships, and networking. The evaluation of Danida's development research should therefore be informed by the extent to which issues have been addressed.

3 Danida's Development Research Programming in Ghana

3.1 Evolution of the support and financing opportunities

Danida's "Pilot Research Cooperation Programme"(PRCP), which was launched under FFU in 2008, included Ghana in its second iteration in 2011. Still today a part of the Window 1, it is based on a South-driven collaboration, where Southern and Danish research institutions submit applications together that, if accepted, are coordinated and managed by Southern institutions. The same year, grant calls announced a shift towards larger programmes that should come with capacity building components, as well as an explicit focus on Southern priorities. In 2014, the South-driven modality in Ghana was strengthened by forming a national screening committee, which was an answer to the new 2014 strategic framework of Danida that emphasized the Southern perspective (see Figure 1 for timeline of changes).

Figure 1: Timeline of key changes in Danish development assistance
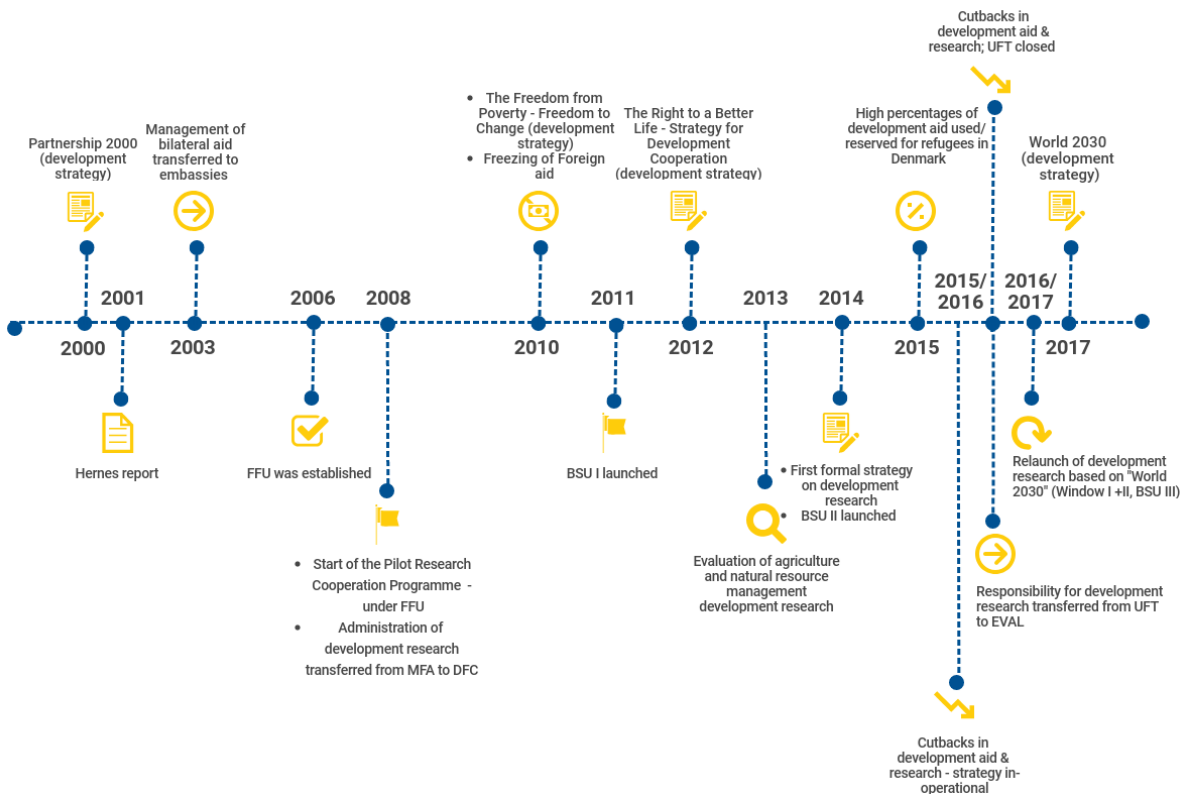
In 2015-2016 a new Danish government cut support to development cooperation, which amidst some major restructuring of the Ministry of Foreign Affairs also reduced funding for development research. The new "World 2030" strategy for Danish development cooperation focused on the Partnering with Denmark Initiative, later renamed the *Strategic Sector Cooperation* (SSC), which was aimed at strengthening strategic partnerships in specific sectors, and at supporting Danish companies and the private sector in areas relevant for SDG challenges in Danish partner countries, Ghana included. The new strategy extended support to development

research to middle-income countries – which would, in principle, extend support to development research to countries such as China, one of the world leaders in research output.

The 2017 call for applications included Window 1 for projects in priority countries under five broad themes, and Window 2 pilots for SSC-related research projects in a number of growth and transition countries. The Window 2 themes were narrowly defined on the basis of sectoral cooperation interests.

 The year 2011 also saw the start of the DKK 60million North-driven BSU1 programme in eleven Southern institutions, Ghanaian ones included. The programme was heavily focused on the development of individual capacity, implemented through PhD scholarships. Critical evaluations and feedback[18] – which one of the interviewees remembered as one of the most challenging experiences in that person's career – led to a radical redesign of the programme, and the DKK 100 million BSU2 programme shifted into a South-driven model for capacity development to support the research environment and research processes. The DKK 90 million BSU3, launched in 2017, saw much less changes and was described by partners as more of a "fine-tuning" of BSU2, with fewer themes and a longer time span. The fine-tuning was still in many ways very concrete, and acknowledged that capacity building and partnerships are long processes and ambitions must remain realistic, that peer-based partnerships have been received well, that activities should not be spread too much, and that DFC's administrative support was essential[19].

3.2   Key trends

One of the reasons why Ghana was selected as a case study was the size of Danida's support to Ghanaian cooperation. Ghana was a partner in 72 projects, constituting 18.1% (DKK 340 million) of overall support – second only to Tanzania, which was a partner in 112 projects, constituting 24.7% of overall support (Table 3).

Table 3: Top ten recipients of support (Million DKK)

Country	Projects	Funding	% of funding
Tanzania	112	463	24.7%
Ghana	72	340	18.1%
Uganda	46	174	9.3%
Kenya	41	165	8.8%
Vietnam	36	162	8.6%
Burkina Faso	18	85	4.5%
Mozambique	13	46	2.5%
Zambia	12	45	2.4%
Ethiopia	10	45	2.4%
Nepal	24	45	2.4%

The University of Ghana was the lead university in six projects, Kwame Nkrumah University of Science and Technology (KNUST) in six, the University of Energy and Natural Resources

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[18] Manyanza, David and Helland, Johan (2013). *CMI Commissioned report: Building Stronger universities in developing countries – A program review report for Universities, Denmark*". ITAD (2013). *Evaluation of Danida supported research on Agriculture and Natural Resource Management 2006-2013*. MFA/Danida Evaluation report 2013.4. Copenhagen. August 2013.
[19] *Building Stronger Universities Phase III 2017-2021*. Programme Document. Evaluation Department; MoFA: August 2017.
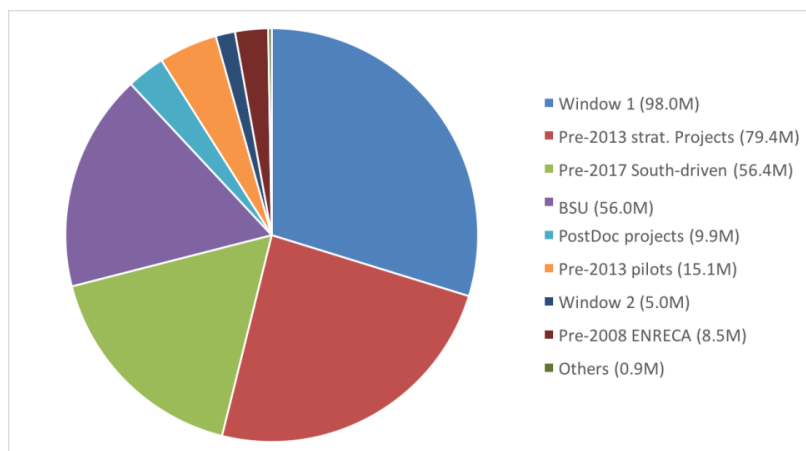
(UENR) in one, Institute of Economic Affairs (IEA) in one, and the Council for Scientific and Industrial Research (CSIR) in one. Others were led by Danish institutions. In the Ghanaian portfolio of available project data, the largest group was minor master's thesis projects (typically DKK 10000-30000), followed by 10 Window 1 research collaboration projects (DKK 10 million), nine pre-2013 larger strategic projects (mostly about DKK 10 million), seven South-driven pre-2017 projects (between DKK 5 and 10 million), BSU (DKK 13-15 million), and other projects and pilots (Table 4).

Table 4: Project types in Ghana (where data was available)

#	Project type
15	BSU Students' MSc Thesis
12	Master's Thesis
10	Research collaboration projects in Danida priority countries (Window 1)
9	Larger strategic projects (prior to 2013)
7	South-driven projects (prior to 2017)
4	Building Stronger Universities
3	Smaller projects: PostDoc
3	Pilot research cooperation projects (prior to 2013)
2	Smaller projects: Initiatives
2	Larger strategic projects – ENRECA (prior to 2008)
1	Smaller projects: PhD
1	Window 2

Financially, the largest modality was the newer Window 1 (2014-2018) projects led by Danish institutions (DKK 98 million combined), followed by pre-2013 larger strategic projects led by Danish institutions (DKK 79.4 million combined). South-driven projects started between 2014 and 2016 constituted 17.1% of grants (DKK 56.4 million) and BSU 17.0% (DKK 56.0 million). Together those four modalities added up to 88.0% of grants allocated, leaving the rest to other, minor modalities.

Figure 2: Project funding breakdown by modality

Legend:
- Window 1 (98.0M)
- Pre-2013 strat. Projects (79.4M)
- Pre-2017 South-driven (56.4M)
- BSU (56.0M)
- PostDoc projects (9.9M)
- Pre-2013 pilots (15.1M)
- Window 2 (5.0M)
- Pre-2008 ENRECA (8.5M)
- Others (0.9M)

Thematically, Ghanaian researchers were involved in a broad variety of projects ranging from agricultural production to transport and infrastructure. There were 15 different thematic areas over the period 2008-2018. With its 22% share of funding, health was by far the largest thematic

area funded in Ghana, followed by climate change (11%) and economic development and value chains (10%). Table 5 presents an overview of Danida-supported research themes with Ghanaian partners.

Table 5: Thematic areas funded in Ghana over 2008-2018 (Figures adjusted for multiple project entries due to multiple themes – project's total grant/number of entries)

Themes by multi and single-country projects	Number of projects	Funding (%)	Funding (DKK)
Agricultural production	**9**	**8%**	**30 973 813**
Ghana	6	5%	20 239 630
Multi-country Africa	3	3%	10 734 183
Aquatic environment and resources	**7**	**6%**	**22 546 684**
Ghana	7	6%	22 546 684
Climate change	**10**	**11%**	**43 622 043**
Ghana	9	10%	40 501 922
Multi-country Africa	1	1%	3 120 121
Conflict, peace and security	**1**	**1%**	**4 971 998**
Ghana	1	1%	4 971 998
Economic development and value chains	**8**	**10%**	**37 983 473**
Ghana	6	5%	19 527 940
Multi-country Africa	1	2%	9 977 540
Multi-country International	1	2%	8 477 993
Energy	**4**	**4%**	**16 175 103**
Ghana	4	4%	16 175 103
Food security and safety	**6**	**5%**	**19 712 544**
Ghana	2	1%	5 858 241
Multi-country Africa	4	3%	13 854 304
Health	**14**	**22%**	**87 973 082**
Ghana	11	19%	75 275 988
Multi-country Africa	1	1%	2 340 470
Multi-country international	2	3%	10 356 624
Natural resource management	**5**	**4%**	**16 692 377**
Ghana	4	3%	11 416 541
Multi-country Africa	1	1%	5 275 836
Production, industry and labour	**3**	**2%**	**9 174 985**
Ghana	2	1%	4 478 341
Multi-country Africa	1	1%	4 696 644
State building, governance and civil society	**6**	**6%**	**22 973 632**
Ghana	3	2%	9 712 775
Multi-country Africa	3	3%	13 260 857
Transport and infrastructure	**1**	**1%**	**3 272 064**
Ghana	1	1%	3 272 064
Unspecified	**1**	**15%**	**60 000 000**
Ghana	1	15%	60 000 000
Urban development	**1**	**1%**	**3 272 064**
Ghana	1	1%	3 272 064
Waste management	**2**	**2%**	**8 769 903**
Ghana	2	2%	8 769 903
Water management and sanitation	**3**	**3%**	**11 518 316**
Ghana	2	2%	8 398 195
Multi-country Africa	1	1%	3 120 121
Total	**81**	**100%**	**399 632 081**

4 Findings

This chapter presents the findings of the evaluation. They are organized around the OECD/DAC criteria of relevance, effectiveness, efficiency, and impact in relation to the 20 evaluation questions adopted for this evaluation. The findings are framed by a systems perspective in order to reflect the interdependence and interconnectedness of the issues that emerged and to holistically facilitate the identification of strategic issues and recommendations on the way forward.

4.1   Relevance

The evaluation examined the extent to which the objectives of the Danida development research interventions were consistent with the policies, needs, priorities and requirements at the institutional and university-wide, national, global, and individual beneficiary levels, as well as the strategic goals pursued by Denmark. Accordingly, the evaluation assessed the extent to which research funded by Danida further advanced the SDG goals; contributed to improving Danish international development assistance; addressed knowledge gaps; and responded to changes over time. The appropriateness and relevance of the themes specified in the calls for research proposals, and the modalities and channels of development research funding were also assessed. In addition, opportunities for continuing the interventions were assessed using the following evaluation questions:

EQ1. To what extent, and how does research funded by Danida further advance the SDG agenda as well as partner countries' development policies and strategies?

Danida's development research calls have addressed several sustainable development goals. That, however, may have more to do with the breadth and sheer number of SDGs than explicit planning. For example, themes like those in the 2019 Window 1 call – sustainable economic development, gender equality, humanitarian assistance, climate change resilience, and state building and governance – all easily fit under the 17 integrated SDGs which are interrelated and interdependent and need to be viewed holistically and from a systems perspective. The 2019 Window 2 themes are closely linked with the interests of the Danish private sector and not SDGs – take, for instance, the maritime domain in Ghana and veterinary data for pork production in Mexico[20] – but due to the coverage of SDGs, each of them can, in principle, still be more or less connected with the SDGs. That feature of the SDGs combined with their "no-one left behind" and cross-cutting nature, make the SDGs alone an insufficient measure of relevance.

FFU Window 1 funding calls are explicitly aligned with SDGs and the priorities of partner countries. All the recent FFU funding calls[21] require projects to respond to national development priorities related to the SDGs, while explicit links in BSU are weaker[22]. Overall, the 2030 Agenda, albeit mentioned in FFU funding calls[23], is secondary to the much better known SDGs. However, interviewee opinions on the Danish government side are mixed about whether the post-2015 research agendas were addressed strongly enough in Danida's approach since the

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[20] *W2 Call 2019.pdf*
[21] *Final Call 2017 window 1-.pdf, Final Call Window 1 Phase 2.pdf, Invitation and guidelines for W1 Phase 2 2018.pdf, W1 Call 2019.pdf*
[22] *BSU3-UG 2017-18 Progress-Report.pdf, BSU3-KNUST 2017-18 Outcome Area Progress Report-25-06-19.pdf, BSU II Midterm Review Report 29-03-2016.pdf*
[23] *Call 2018 window 1 final.pdf, Final Call 2017 window 1-.pdf, Final Call 2017 window 2-.pdf, W1 Call 2019.pdf, W2 Call 2019.pdf*

2015s. The massive budget cuts since 2015 and reallocations to strategic sector cooperation did not lead to major updates or revisions in Danida's strategy and approach – especially in the case of BSU. One interviewee felt that the programme designers "*didn't put a lot of thinking, I think, into the post-2015 research agendas*". Yet, there is a broad consensus among the Ghanaian grant recipients and coordinators that SDGs and Agenda 2030 strongly guide discussions between Danida and Ghanaian partners – especially on BSU3 and recently FFU – and that is perceived as a very positive development in Ghana. That being said, those discussions focus on a narrow and superficial thematic fit instead of issues such as supporting transformative change, integration, and the "no-one left behind" principle.

The relevance of Ghana's Window 2 themes to SDGs seems contrived. The 2017-2019 Window 2 calls[24] state that SDGs constitute an overall thematic framework, but in the Ghanaian case the very narrow country-specific research themes make the relevance to SDGs look artificial and silo-based instead of recognising the cross-cutting, integrative nature of SDGs and their "no-one left behind" theme. Around maritime issues the call proposes a few topics, such as e-navigation solutions and the economic impact of piracy, which – while potentially useful for Ghana and beneficial for Danish economy, trade, and investments (as the Danish *World 2030* strategy[25] directs) – seem marginal for SDGs. Even the few proponents of Window 2 stated, "*the new Window 2 … doesn't match the expressed needs of the countries*" and "*it's a bit contingent what gets recommended* [for themes in Window 2]". Similar, some advocates of Window 2 questioned how well planned the shift to *World 2030* and the subsequent Window 2 calls to use development cooperation funds to support research in countries like China (which is the second largest producer of research in the world).[26] Whether the development budget should support Window 2 remains an open question.

The relevance of BSU to national development relies on the partner universities' own alignment with their national policies and strategies. BSU is well positioned for strengthening administrative systems and procedures in partner universities, and has the potential for an institutional impact (and has already shown good progress). That is not an SDG, Agenda 2030, or national policy target though, and although in BSU2 and BSU3 application of research to development needs was a concern in principle, Ghanaian stakeholders considered that Ghanaian universities did not pursue it strongly in practice.

Attention to some strong cross-cutting SDGs that seem obvious from a Nordic perspective, especially gender equality, are strikingly absent from Danida's approach. One Danida programme designer explained the absence of gender as a thematic area (prior to 2019) with inertia – "*instead of just saying 'so now the fashion is shifting to gender or human rights or something else,' we felt obliged to follow some of the paths that had already been laid*". However, inclusion of gender as a thematic area is not the crux of the matter: no study is gender-neutral, no selection of research teams avoids questions about gender, and economic and societal impacts that Danida aims at achieving are always gendered in one way or another. There is no reason not to weave

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[24] *Final Call 2017 window 2-.pdf*; *Call 2018 window 2 final second edition 21 Nov 2017.pdf*; *W2 invitation phase 2-2019v2.pdf*
[25] *The World 2030: Denmark's Strategy for Development Cooperation and Humanitarian Action.* Ministry of Foreign Affairs of Denmark, January 2017.
[26] https://www.scimagojr.com/countryrank.php

gender sensitivity into the funding mechanisms in a stronger manner than just through a thematic area in the latest call[27] and through a request for gender balance in BSU2 and BSU3.

Given the present broad agreement over the SDGs, alignment between stakeholders' SDG-based priorities has become nearly inevitable. Interviewees and meeting memos showed that FFU and national screening committee discuss SDGs, the embassy discusses them, PIs and administrators discuss them, Ghanaian ministries and departments base their work on them, and project coordinators are conversant with them. As Ghana's own development policies and strategies are written with SDGs in mind, as Ghana has signed agreements that bind them to SDGs, as Danida bases their approach on discussions with Ghana, and as Danida makes it very clear that SDGs are central to everything they do – it is difficult to see how there could *not* be a tight alignment between Danida's approach, Ghanaian policies and strategies, and SDGs. Applications that do not clearly discuss SDGs never proceed beyond national screening committees. What is more, even though the language turned from millennium development goals into SDGs mid-way in some of the projects that started prior to 2015, adoption of SDGs into those has been swift. Again, alignment with some SDGs does not mean that they are being approached holistically, in a cross-cutting and integrative way.

Alignment at a strategic level does not mean there is effort, impact, or activities in practice. Critical voices were raised about the lack of an evidence-based approach to addressing both SDGs and Agenda 2030: "*If we aren't given funding for doing an evaluation and impact assessment to evaluate alignment and impact with SDGs and Agenda 2030, then how can it be expected from us?*". A number of interviewees criticised the lack of true commitment to SDGs, believing that just having to justify SDGs on a funding application with no follow-up later pays lip service to them, nothing more. Steering is needed, as things rarely happen unless they are explicitly planned and assessed.

There is a feeling that weaving SDGs into projects is a matter of grant-writing ability as much as a feature of projects themselves. A common, recurring theme in the interviews was a notion that connecting research with the thematic areas and SDGs was a matter of how applications were written. For example, one interviewee, who worked in a field not easily connected with the currently funded thematic areas, superficially changed his/her focus so that it fell within the thematic area, while that interviewee's real focus remained unchanged. Another project was marketed through SDGs as being very relevant for Ghana's priorities, but even the project PI thought that the project turned out to be a dead end in development practice. FFU members stated that SDGs are often a matter of presentation – those applicants who were not able to present the link between their proposed project and the SDGs negatively affected their chances of being accepted. A Danida programme developer said, "*Some have almost made* [grant writing] *into a profession: There's one particular department at UCPH* [...] *one year we calculated they got 17 out of 20 grants*".

EQ2. To what extent, and how does research funding contribute to improving Danish international development assistance?

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[27] Window 1 call in 2019 introduced a theme "gender equality and development" (*W1 Call 2019.pdf*)

The Danish support for development research has been very well planned at a strategic level. Key strategic documents show learning from others' experiences, insightful strategising, geographical focus, empowerment, and adherence to the latest agreements and trends in development assistance[28]. The South-driven approach that Danida adopted for support to development research is well in line with the main international and Danish policies and priorities.

In practice, strategic thinking for development research has been applied inconsistently and only partially. While the human rights based approach (HRBA) and importance of gender equality were highlighted in Danida's 2014-2018 strategy and many government documents, their implementation in practice in Ghana has been much weaker. Adherence to the Paris Agenda, which was highlighted in strategy documents, has not featured very strongly in practice either. For example, donor coordination happens at very high level, and there is little mapping of overlapping research projects (FFU) or capacity building initiatives (BSU) in Ghana. This gap between strategy and implementation was generally attributed to discontinuity between governments in Denmark. Fixed strategy and fewer changes with sectors and themes would help to align research with development assistance better. Although the projects for Ghana are aligned with their respective calls and the World 2030 plan,[29] as long as relevance to other development assistance is not regarded as important in research project screening, it is unrealistic to expect to see it occur spontaneously in the future, either.

The narrative of what is development research has broadened from poverty alleviation to aid-for-trade. That shift happened with the change of the Danish government and was in many ways implicit – but also explicit through Window 2 – and most of all it was felt that it was a necessary shift for the continuation of funding for development research. It might be too early to judge Window 2 in Ghana at this point of time, as the modality is new and it was established in a hurry, and projects in partner countries had to be identified at very short notice and not always in a very systematic way. There has been resistance towards involving companies and strategic sector interests in funding calls: it undermines researchers' judgment of the most fruitful directions in research, it shifts focus away from countries' own needs and plans, and it values money and financial gains over traditional values of aid. At the same time, there are also those who see Window 2 in a positive way: it enables continued Danish influence in transition economies, it forces research to be based on something else than researchers' own interests, and it facilitates clear, long-term impact thinking. What is more, the partnerships in Window 2 do require researchers to look outside narrowly focused research areas and they do encourage practical applicability in projects.

Like other donors, Danida has tried various approaches to creating synergies between research, industry, and other Danish development assistance, but with limited impact. The lessons learned this far are that companies must be involved early in the process, that implementation must be closely monitored to make sure the plans are followed, that actively arranging meetings is crucial, and that in absence of basic research, researchers must get other incentives. Those Ghanaian projects that were particularly successful in this aspect made it clear that they were born out of long-term collaborations. "*It doesn't just happen without planning; I mean we*

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[28] *Strengthening research capacity: Strategic framework for Danish support for development research 2014–2018.* April 2014: Danida.
[29] *The World 2030: Denmark's Strategy for Development Cooperation and Humanitarian Action.* Ministry of Foreign Affairs of Denmark, January 2017.

were very conscious about it". The challenges apply to all modalities in Ghana: FFU research projects complain about lack of money for roll-out and impact, researchers expect Danida (and not themselves) to act based on their policy briefs and "positive stories", scepticism about Window 2 is felt at least on the researcher side, and the attribution problem undermines the long chain of logic between building stronger universities to achieving specific Danish high-level objectives.

In Ghana, Danida considers malaria research to be the flagship example of research cooperation. The malaria research funded by Danida is among the strongest in the world, capable of winning competitive European Union research funding on its own. Another example of clear impacts of research co-operation comes from an FFU-funded study that found that a very large percentage of medicine sold in Ghana contained insufficient amounts of the active ingredient, which led the Ghanaian government to tighten the food and drugs authority's regulations on the import of medicine. Another channel of influence is also important: macroeconomists who benefitted from some FFU-funded research and studied the impact of development co-operation on developing economies, have become influential in Danish political debates, able to provide evidence-based counterarguments to populist rhetoric on development co-operation.

EQ3. Does the portfolio of research projects adequately respond to knowledge gaps?

FFU requires a clearly articulated knowledge gap in research proposals to get accepted. The FFU meetings prioritise clearly written and analysed knowledge gaps in the proposal review, and their number one criterion is novelty, followed by relevance to the theme. In line with FFU's mandate, FFU looks at knowledge gaps at a research project level, not at a country level or more strategic level. No evidence was found of systematic knowledge gap analysis used in development of the thematic areas in each call. Researchers feel that they are able to set their focus of research based on gaps in knowledge they identify and consider important, and are able to justify through research.

A tension between basic research and applied research undermines the Danish research co-operation's goals. Researchers in Ghanaian projects are divided between addressing important applied research gaps (which are important for the countries but do not earn the researchers papers in top journals) and important basic research gaps (which can make it to top journals but the effects of which on the country level may be minor or only appear over the long term). Danida wishes more applied research, while many Ghanaian and Danish researchers prefer basic research, which better furthers their careers. In many instances, Ghanaian partners have been crucial for identifying the gaps for applied research, while Danish partners have been crucial for identifying the gaps in basic research.

Window 2 has shifted the focus away from knowledge gaps justified by previous research. Development researchers who have a history on research work in Ghana feel that what they consider to be fruitful directions of research are superseded by the Danish industry's interests: On a more general level, one researcher lamented that if one has an excellent, practical agricultural research problem in Colombia, "*the response can be that we focus only on swine in Colombia, and the reason is that Denmark has a large pork industry that wants to sell their own solutions*". A number of FFU members consider that Window 2 has undermined their work.

EQ4. To what extent has the portfolio of funded research responded to changes over time (particularly in the "post-2015" SDG era)?

In the post-2015 era SDGs have, in the programme documents and in the opinions of interviewees, come to play a central role in development research funding calls and grant selection. Universities discuss SDGs with the Ghanaian government stakeholders, with Danida, and with partner universities. SDGs are referred to in Ghana's screening committee meetings and in FFU meetings. By doing that, Danida has adopted a way of conceptualising development challenges in their FFU support to development research funding with which there is little disagreement. In other modalities, SDGs play a smaller role: aside from the obvious ones (such as education) they do not play a major role in BSU programming, and there is a feeling that SDGs play a much more minor role in Window 2 projects, too: although documentation does highlight SDGs also in Window 2, the themes are defined increasingly by Danish interests than those of the partner countries.

The themes of "old" FFU-based funding have remained relatively consistent, but new modalities have considerably changed Danida's portfolio. Especially around 2010-2015 Danida was heavily focused on re-thinking modalities of support, but inertia meant the Danish support continued with themes that already had been supported heavily. Despite diminishing money available, that inertia has led to successful support – such as malaria research – but also to continuing support to research groups whose past successes no longer materialise in effective results that respond to local needs well. The shift to Window 2 and strengthened strategic sector cooperation was not broadly received by researchers as being beneficial for development of research capacity or research careers, many felt it was driven by politics and industry interests, strategic sector partners have business as their primary objective, and there is no consensus on whether or not it separates Danida's funding portfolio from both Danida's own strategy and the plans and priorities of partner countries. None of these concerns can be reliably assessed before Window 2 has matured enough.

EQ5. How appropriate and relevant are the research themes specified in the calls for research proposals?

Authorities and stakeholders in Ghana consider Window 1 themes to be well-suited to Ghanaian policies, visions, and strategies. SDGs drive Ghanaian policy planning, but policymaking is also dependent on international and regional conventions to which Ghana is a signatory. The SDG-driven FFU funding themes have been very well aligned with Ghana's visions. There was a near universal consensus among Ghanaian government stakeholders, researchers, and administrators about the appropriateness and relevance of the FFU research themes and selected research projects to Ghana's needs, universities' own goals, and researchers' needs. There is much less consensus over the appropriateness and relevance of Window 2 themes in Ghana.

The frequent changes and scope of FFU thematic areas causes uncertainty among researchers. There is no consensus over whether it is positive or negative that themes change every so often, but those changes do require Ghanaian and Danish researchers to re-frame their work in ever new ways that fit each new call. This has led to a feeling in Ghana that one can game the system by tweaking one's research angle to fit each new call. Some frustrations were

voiced in Denmark about the extremely broad scope of what is today considered to fit under the umbrella of "development research", and FFU admits that the concept has been somewhat diluted. The scope of development research can mean anything from research in development studies (a branch of social sciences) to any research that aims to provide answers to development problems. The more different fields a call permits, the harder it is for FFU to justify – within the same call and the same council – a ranking of rather short research proposals from fields like medicine, anthropology, and energy.

EQ6. How appropriate are the modalities and channels of development research funding ("fit for purpose")?

The shift to the South-driven model has served FFU funding to better produce research that meets Ghanaian needs. It has not only given Ghanaian partners much more power in deciding what is important, but also changed their perception from being primarily research assistants and collectors of data to being full-fledged research team members. There was a strong consensus among researchers, principal investigators, administrators, and researchers about the benefits of south-driven modality: improved relevance, more equal partnerships, a two-way relationship, more power over choosing one's partner institutions, jointly developed project plans, and experience of project leadership. On the negative side, the greatly increased workload caused by project management was a common complaint, as was the lack of time allocated for project management, both of which greatly stressed principal investigators.

Engaging Local Communities: An Example from Lake Bosomtwe

Lake Bosomtwe, the only natural lake in Ghana, is changing. The lake's limnology has changed over the past decades, causing a decline in the number of fish. A group of researchers at University of Energy and Natural Resources have followed the change for more than two decades, working with the many communities around the lake: fishermen, tourism industry, local inhabitants, and community leaders. After several projects to study the lake from multiple perspectives, the group applied for and won Danida funding to study the lake's ecosystem and its socioeconomic role for the local community, and to develop capacity for sustainable practices, improved lake health, and reduce the vulnerability of local residents.

The group's success is based on their decades of deep and wide commitment with the local communities, scientific excellence, local knowledge of the nature, and emphasis on community development. The group has developed their strategies and protocols for engaging vulnerable and marginalized groups and to win acceptance from the communities. For instance, they start with the traditional leaders and authorities to learn how to communicate appropriately with the different communities. They use long-term personal relationships to combat research fatigue and informants' feeling that participating in research leads to no meaningful change in their lives. They ensure they give back to the communities so that people feel positively about the change in their lives. The group has also engaged with 14 government, national, regional, and local authorities for collaboration. The group's approach offers a great example of how to improve a project's engagement with marginalised and vulnerable populations, engagement with local knowledge, and mitigating potential negative outcomes from the research.

Concerns are voiced about how South-driven the South-driven projects are managed. As long as much of the financial decisions and reimbursement of costs are based on the approval of

Northern partners, as long as rules and regulations are those of Northern partners, and as long as accounting in the South has to follow those of the donor, the projects are still North-driven in many important ways[30]. Similarly, as long as "suitable" research questions are those basic research questions that are in vogue at any given moment in the global north[31], and not those applied research questions that would benefit Ghana the most, the projects remain North-driven to a large extent. If the Ghanaian project leadership has little to no control over the timing of Danish partners' activity with the project, there is a significant Northern control over the project. Where the Danish partners get 44% overhead costs and Ghanaians 12.5% for the same activities, feeling of equality diminishes – even when much of that inequality is due to different, unavoidable university requirements. A consensus in one focus group formed behind the statement, "*one of the problems is that our North partners still get 50% of the money but all the work is done by the Southern ones. … We do everything here, and North only comes here, uses per diems, and gets publications.*" Yet, despite a number of dissenting voices, the majority of interviews were positive or very positive about the South-driven modality of FFU funding in Ghana.

Since its major revision after BSU1, BSU2 and BSU3 are fit for the purpose of research capacity development. Ghanaian university administrators have different opinions on the merits of BSU1, it was not considered a success in Denmark, and it was critically evaluated[32]. BSU2-3 revamped the model and it was much better accepted by all stakeholders. BSU modality responds well to UG's and KNUST's ambitions to become research-intensive universities, and it has helped to build a culture of research in terms of research-based teaching, grant management, doctoral schools, PhD conferences, research publishing workshops, short-term trainings, faculty exchange, courses, teleconferencing, training-of-trainers, and e-learning. The PhD scholarships involved in BSU are typically the highest budget line, and BSU is also financially heavy – the expectations of its performance are, therefore, higher than the other BSU parts (BSU3 limited that support). In a number of fields BSU is aimed at serving a need for filling a gap between established professors about to retire, and younger staff members aspiring to a research career.

BSU may try to do too many things for its size. From the start, BSU documents list a very large number of different activities that all fit under the umbrella of capacity development. BSU3 at KNUST, for instance, involves activities such as the development of multiple information management systems, course development, writing of multiple policies, guideline development, research data management training, training of lab managers, development of training modules, lab equipment inventory development, grant writing and management workshops, e-resource capacity strengthening, poster design training, e-learning platforms, virtual facilities, forming of multidisciplinary research groups, curricula development, data analysis tools, improving academia-industry collaboration, pedagogical training, international networking, and more[33]. While there is no reason to doubt that there has been progress across all the BSU activities, the resources may become spread too thinly. Other evaluations have raised similar issues with BSU[34],

[30] This issue was raised by Lene Møller Madsen and Hanne Kirstine Adriansen in *Opportunities, Challenges – and Bad Weather: Experiences and reflections of African researchers involved in Danida funded research capacity building 1989–2019*. Danida Fellowship Centre.
[31] *ibid.*
[32] *Evaluation of Danida-supported Research on Agriculture and Natural Resource Management 2006-2011*. Orbicon & ITAD, August 2013.
[33] *BSU3-KNUST 2017-18 Outcome Area Progress Report-25-06-19.pdf*
[34] *Review of the Master Scholarship Programme: Final review report*. December 23, 2015, Ramboll.

and criticised the lack of cross-cutting coordination in BSU and the resultant missing potential for synergistic effects for wider impact[35].

Some initiatives may have reached the point of diminishing returns. A number of interviews raised the question of whether support to some of the continent's strongest universities gives the best return for the investment. For the well-funded University of Ghana, for example, Danida's support is "*a drop in the ocean,*" as one interviewee put it. For both UG and KNUST, Danida does not come even close to the largest donor either in terms of money (e.g., NIH, World Bank, USAID, DFID, UNDP) or in terms of scholarships (e.g., Chinese, Japanese, and DFID scholarships) (Danida's funding profile is slightly different from the others, however). Although UG is certainly able to absorb and effectively utilise all of the grants given, interview data pointed to three questions: whether 1) development cooperation funding should at all be used on institutions that are already developed by almost all measures; 2) if the same money would have greater relative impact in a less-funded university; and 3) if new, upcoming universities are less complacent with funding than the more established universities are. In one institution, the interviewees named the five most important sources of funding as: (1) USAID (a 5-year programme in capacity building, including 16 PhD trainees, 20 MSc degrees, 150 undergraduates, and short courses for hundreds of people); (2) World Bank (centre of excellence funded for USD 6.5 million, including 30 PhD trainees and 90 MSc trainees); (3) National Geographic Society; (4) The World Academy of Sciences; and (5) the French Embassy.

There are concerns about how well-suited Window 2 is for the purpose of supporting development research. A number of key stakeholders, particularly in Denmark, were critical of Window 2 in Ghana, although a number of interviewees attributed the problems not to Window 2 as such, but to it having been set up too quickly. Window 2 themes may serve the Danish economic and influence interests well, but when they are driven by strategic sector collaboration, Danish institutions may not have the right kind of expertise for them, there is a lack of private sector expertise in the selection process of Window 2 proposals, and with the very narrow themes of Window 2, finding capable and willing researchers for them may be very hard. On the more positive side, interviewees mentioned that some aspects of development research – education, changing mind-sets, and increased volume of activity – support sustainability better than pure private sector partnerships provide.

4.2   Effectiveness

In assessing effectiveness, the evaluation examined the extent to which the objectives of the development research and capacity building interventions had been achieved. Effectiveness was also assessed from the perspectives of quality of research, effectiveness of the collaboration between Danish and southern partners, contribution to the development of capacities in partner institutions, as well as use of the research results in promoting and understanding technological, social, economic and environmental changes. In addition, functionality of the M&E systems set up to track research project and partner funding progress were assessed using the following evaluation questions:

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[35] Ghartey, A. B. (2017). *Building Stronger Universities (BSU) II Project: BSU II Project Evaluation*. August 2017, Ghartey Associates Limited: Accra, Ghana.

EQ7. To what extent have the objectives of the research been attained?

The funded FFU research projects in Ghana have typically reached most objectives they have set, although delays have been common. Rigorous screening and selection of high-achieving partners has minimised risk-taking in the choice of funded research studies. Project documentation from the sample of research projects included in the country case study showed that some projects had faced serious challenges – change of principal investigator, low-achieving subprojects, and technological challenges, for instance – but those were identified and resolved relatively early and measures were taken to bring the projects to a somewhat satisfying end. Of the projects that did not sufficiently meet their practical goals, one had insufficient understanding of the material and technological context in Ghana, and another had insufficient backstopping mechanisms. Ghana's Window 2 projects are too recent that meeting their objectives could be assessed. Delays in research projects ranged from nine months to three years (Annex 2).

The recent BSU objectives have been met to a great extent, but BSU's potential for impact suffers from its lack of focus. BSU1 was widely criticised for limited delivery of its targets, lack of incentives, ad-hoc implementation without a clear strategy[36], and doing too many unaligned things at the same time[37]. One evaluation of BSU1 elements ended by stating, "*there were no indications that BSU in its current form will produce any lasting and documentable results within the Southern partner universities*".[38] Our previous evaluation of BSU2[39] pointed out an absence of mechanisms that would guarantee synergies between activities, and that would disseminate the benefits to the broader university community where applicable. Lack of coordination and institutionalisation of outcomes was raised by another review of BSU2, which also criticized BSU2 for too many and diverse activities, and pointed out that having many small activities lead to too many time-consuming administrative tasks[40]. Although BSU3 in Ghana is on a good track to meet its objectives[41], the programme remains very broad – even as the Ghanaian BSU management warned that the programme needs to avoid spreading its resources too thin.

EQ8. Are the results of sufficiently high quality?

A sample of FFU final reports listed publications in journals that vary from good to excellent. Although the number of publications between projects varies to a great extent, the academic quality of projects in Ghana, as judged by journal rankings and prestige, meets and sometimes exceeds the expectations for research funding of this type. The full RQ+ analysis in the final report discusses the research quality of Danida-funded research to a greater extent and across multiple dimensions of quality.

EQ9. How good is the research collaboration between Danish & southern partners? What obstacles are encountered?

In South-driven and North-driven FFU/BSU projects, both finished and ongoing, there was a mutual feeling that collaborations have worked smoothly. This evaluation found very

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[36] *Evaluation of Danida-supported Research on Agriculture and Natural Resource Management 2006-2011.* Orbicon & ITAD, August 2013.

[37] *Review of the Master Scholarship Programme: Final review report.* December 23, 2015, Ramboll.

[38] *Evaluation of Danida-supported Research on Agriculture and Natural Resource Management 2006-2011.* Orbicon & ITAD, August 2013: p. 77.

[39] Ghartey, A. B. (2017). *Building Stronger Universities (BSU) II Project: BSU II Project Evaluation.* August 2017, Ghartey Associates Limited: Accra, Ghana.

[40] *Mid-term Review of Building Stronger Universities Phase II.* Ministry of Foreign Affairs, March 29, 2016.

[41] *BSU3-KNUST 2017-18 Outcome Area Progress Report-25-06-19.pdf*

few glitches in collaborations even in tough situations, and problems were resolved professionally. And where personalities matched, close and personal friendships have been forged – within and across university ranks. Many students had the feeling that their Danish supervisors went well beyond what would have been expected to help students with their work and to make them feel welcome: "*My supervisor, I was a part of his family. Even my health, he was interested in my health and everything. … And they encourage you. That's amazing*". Soft supervision models where one is invited to challenge their supervisor were reportedly adopted by a number of Ghanaian partners in their own work. Danish partners also helped procure cheap, high-quality materials.

North and South have many good experiences of relationships and collaboration. As always, distance makes collaboration less frequent, but joint workshops and conferences have helped sustain the relationships, and DFC has played an important part in facilitating and sustaining cooperation and communication. One strategy for Ghanaian researchers to create and sustain well-working collaborations has been to deliver on their promise, and expect the same from their partners. One group who had won their small university's first major research project through Danida, said, "*As the university's first major research project, we believe that if you do a good job, and are able to deliver, then that will set a stage for more opportunities to come. We want to make sure that we do everything right, follow all commitments, do everything by the book.*"

Where glitches in the relationship surfaced, they were often about money. The most common complaint about communication was lack of budget transparency below project leadership. It was not always clear whose responsibility it was to pay for which expenses, who gets what and how much, how much there is left in the budget, and even whom to ask about it. In one case a student knew exactly how much funding his/her part of the project had at the beginning, but had neither any say about its use nor knowledge of what part of the project it was eventually used on. Lack of transparency about project finances makes planning harder and undermines the feeling of equality and mutual trust. For instance, there were cases where surprise bills for expenses incurred in Denmark and where sometimes some things were paid – visa fees, for instance – and then next time they were not, which makes budgeting hard. In one case, hard feelings were caused when after a project was won, all of one Ghanaian institution's allocated person-months were reportedly moved away to another institution.

Unequal power relations show through small cracks on an otherwise equal-looking surface. In one case, the decision to end collaborations with some Ghanaian stakeholders and cancel PhD student positions were done at the Danish end, leaving the affected partners with a feeling they were not consulted properly or at all about the decision. Some Ghanaian partners felt that they had little control over the timing of visits of Danish partners: "*we have to structure our work around* [theirs]. Another Ghanaian partner said, "*They* [say they] *want to come, and then they come: Sometimes they come at the time of our* [vacations]". Another source of issues was promptness of communication: one interviewee felt that Danish partners treat email like it were WhatsApp, where you must respond immediately when the Danes wanted – but that is what phones and instant messengers are for. Some interviewees expressed, more or less clearly, feelings about different levels of competence between the North and the South. And in those cases where the Northern partners wanted to maintain an iron grip over the projects, including communications

and what partners are allowed to tell about the projects, the feeling of "equal partnerships" was lost.

EQ10. To what extent have the research projects contributed to development of capacities in partner institutions?

There have been a massive number of different kinds of capacity development initiatives over the years–some more successful, some less. Danida's programmes, especially BSU, have involved dozens of different types of small interventions (see examples under EQ6), and focused analysis of each one of them is beyond the scope of this evaluation. Most of them are labelled "capacity building" although stakeholders like FFU struggle with defining what exactly capacity building is. Although having a large number of small interventions has its drawbacks (see EQ6), its benefits include wider spread feeling of inclusion, building of communities where everyone feels they benefit, and ability to experiment on modalities. Small investments can also support sustainability: minor investments in laboratories, for example, have helped to avoid the situation where Ghanaian researchers trained in Denmark would come back to find no use for their newly acquired technical skills with laboratory instruments.

Danida's approach to capacity building through research projects complements other funders' support. There is a feeling that funding research projects and training PhDs complements other types of funding from other sources – infrastructure and access to literature, for example, are given by others. Methodology workshops and short courses on well-focused topics, such as scientific writing or applying for grants, have been very popular, although Danida is not the only one providing such courses. Sida, DFID, and INASP, for instance, run their very popular AuthorAid program as well as its embedding and institutionalisation initiatives in the same countries where Danida provides support to universities[42]. What is more, Danida's modalities overlap to some extent, complicating how Danida grants are seen in universities: for instance, both FFU and BSU give research grants but through different assessment processes and as a result, it is more competitive to obtain FFU research grants.

Research groups frequently cited improved research skills as the most important capacity development from FFU projects, but that leads to many outcomes. Interviewees felt that the improved research skills have led to improvements in career development possibilities, research-based teaching, higher-quality articles, pedagogical approaches, knowledge-sharing, and grant-writing ability. South-driven projects especially were said to have led to improvements in international networks (as PIs are at the centre of the projects), supervision capacity, flexibility in communication, project leadership experience, and South-South networks. The improved research capacity has elevated the prestige of research groups and departments nationally and in the universities. However, as none of the above ripple effects were specifically measured in the projects, and could not be verified in this evaluation, the evidence for them remains anecdotal.

Capacity injections at the scale of small research teams often disperse after the project. Dispersion of research teams was reported occasionally, and although in those cases the intellectual capacity built is not lost, the synergy and teams built are, and the experts may end up working on different topics where they "*can't use your expertise and benefit from what you learned*". One

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[42] Haylor, Graham & Lloyd, Rob (2018). *Evaluation of Strengthening Research and Knowledge Systems: Synthesis Report.* August 2018, ITAD.

interviewee lamented the amount of energy and effort put into creating and training a well-working research group that breaks-up after the project. There is a feeling that the research projects are undertaken, and then when money runs out, abandoned – which reflects that the funding did not support strategic research programs but individual projects. Paradoxically, the more successful the project is and the more nationally important it is, the higher the chances are for its researchers to be offered well-paying jobs in companies and consultancy outside the universities after the project ends.

Where the BSU-type capacity building is implemented with institutionalisation in mind, results can be permanent and synergistic. In one of the universities, the leadership engaged in BSU with the intention to simultaneously build university structures to fulfil the institutional vision, and that steered the BSU activities. The university set up a number of units where staff members are responsible for different kinds of BSU initiatives. That direction of development had strong support of the management, and alternative plans were made to continue without Danida funding. The more flexible the call, the better it can be made into something that supports the university's own vision: "*it's not like 'we've brought money for engineering so you'll have to do engineering' but it's more like 'we have this amount of money for strengthening the university: please tell us what your priorities and plans are'*". The different BSU elements were brought in to support the university's vision: for example, training lecturers to PhD holders is not a matter of prestige but of the university's goal to support research-based teaching through training of trainers (ToT). Currently the university has structures for research support, ranging from outreach and popularization to writing grant applications and managing grants. The key success factors, according to a number of interviewees, are institutional vision, support by university leadership, clear ownership, institutionalisation, and embedding into new and existing university structures and activities.

University of Ghana: Towards a Research-Based University

The BSU programmes have served the University of Ghana's institutional vision very well. The university had made a strategic decision to develop towards a university strongly based on research coinciding with the start of the BSU programme. When BSU1 started, many colleges at UG struggled with too few doctoral degree holders to run the educational programs. BSU1 was developed together between the Danish and Ghanaian partners, and contributed to increasing the number of PhD holders, as well as capacity building on many other levels. BSU2 was aimed at strategic priorities and aligned its central themes with areas identified by UG – again, UG considered their strive towards research-based university a priority. By the time of BSU2 and BSU3, the university had expanded its vision to research-based teaching, doctoral schools, and PhD conferences aimed at familiarising young researchers with academic practices in their fields. While BSU has been a complex funding instrument with numerous, disconnected smaller and larger activities, it has been aligned with and successfully supported the University of Ghana's vision of becoming a research-based university.

EQ11. How well are the research results being used with respect to promoting & understanding technological, social, economic & environmental changes?

There are examples of well-cited publications from Danida-funded research, and more can be expected over time from high quality publishing outlets. A consistent feeling of

quality consciousness was seen throughout the interviews and desk study of reports. PhD students and researchers were familiar with the concept of journal prestige, and universities had various incentives and structures in place for advocating higher-standard journals as well as quality control, such as DRIC of UCC and ORID of UG. The RQ+ analysis (final report) discusses to more extent pick-up of research in the academia.

There was a feeling that the more prestigious the journal, the less suitable it is for Ghana-specific results – and the more a study responds to specifically Ghanaian issues, the fewer citations it will gather. One group of PhD students pointed out that indicators for impact are different from indicators of academic quality, and the choice of where to invest the limited efforts is a value choice: "*It doesn't take a high-impact factor journal to have impact on society*". In some of the best journals the preferred topics, theoretical approaches, and methodological choices are set by very US/EU-centric editorial boards. Several Danish supervisors held similar opinions: One said, "*if you have a study coming out of Ghana looking at* [animals] *uncommon in the USA, looking at weird* [materials], *looking at weird disease, then papers easily get rejected just on that basis* [too narrow scope and too heavy context-dependence]". And they surely will gather much fewer citations than studies on a popular topic. Another pointed out that the global research community prefers generalisability, while much research in Ghana is about locally important problems, and when Ghanaian researchers publish good research, then their results might still not get published in the highest-quality journals.

Industry integration has showed a lot of promise but suffers from pilotitis. Danida-funded projects in Ghana have a number of promising examples of integrating industry in the projects. However, few have actually proceeded beyond prototypes or pilots. One project team explicitly said about industry collaboration, "*scaling up is still a question … a demonstration or pilot isn't enough to justify a big roll-out*". Another team said, "*the Danida-funded projects – most of them – end just when they would be ready to upscale and be implemented*". For instance, one project had a product co-developed with industrial partners, a clear market plan, needs analysis, and successful pilots, but the outcomes never materialised at scale due to very limited seasonal availability of the materials needed and due to poor shelf life of the product. Another project studied technology that provided ample research problems and outcomes but turned out to be poorly suited for its intended use in the Ghanaian context. Yet another project has developed a product that has promise and is available for purchase; there is no information of sales at this point. Difficulties with research uptake are not, however, a problem specific to Danida -all development research struggles with the same challenge.

The more funding is allocated to promoting the results, the better the chances for impact. The interviews showed that the more lobbying and dissemination activities there are, the more those results are picked up, and indeed many groups have been invited to present their work in ministries. There are occasional cases where the media have picked up Danida-funded research, and where researchers have got ample screen time and airtime on radio, but those are not the norm. But when there is little to no funding allocated to active dissemination of results then hoping that academic innovations somehow automatically transfer to industrial or social innovations is wishful thinking.

> **Promoting Results: The UCC Experience**
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> One of UCC's Danida-funded projects adopted, from early on, an active strategy for the dissemination of results and activities. The Ghanaian partners did, in conjunction to other funding, apply for extra funding from different donors for organizing a conference on fisheries and coastal environment. The results are encouraging. The conference was designed to attract and gather a variety of stakeholders together: researchers, fishermen, policymakers, and international experts. The design was intended to ensure that policymakers hear about the initiatives and results, that fishermen can exchange and gain knowledge, and that researchers get to share their latest results. The conference has attracted considerable attention. During the course of this evaluation, a link to the conference appeared on the Facebook page of the Vice President of Ghana.

EQ12. Are there well-functioning M&E systems set up to track research project & partner funding progress?

Danida's monitoring and evaluation approach was praised by the researchers and administrators. There was a nearly unconditional support to Danida's approach to monitoring and evaluation (M&E), although some complained that occasional changes to M&E hinders continuous monitoring. Across the modalities, countries, and types of grants, recipients and administrators considered Danida's light and simple reporting structure to be much less burdensome and bureaucratic than those of national or EU grants: "*It's much nicer to write the outcomes into 1000-character fields than 60-page reports*". Danida was also perceived as being open to no-cost extensions of projects when there are unexpected delays in projects (Annex 2), and open for budget reallocations even between budget lines. FFU monitors quality at three points: first-year, mid-term, and completion reports, and DFC's monitoring at different stages was perceived beneficial. On occasion, FFU, DFC, and EVAL also visit projects to get a good idea of what is happening on the ground. As Danida's check points are only few, one can ask whether the M&E system is capable of catching early enough those projects that are not going right: one project, for example, had serious problems and frequent changes in management, which went on for much too long unchecked, which in turn exacerbated the problems.

The only broadly criticised item was the use of logical frameworks (LFA) for reporting. Both Ghanaian and Danish partners have frequently been frustrated by the LFA requirements, and consider force-fitting project activities into an LFA format to be the largest time sink in reporting. Very little positive sentiment was expressed about LFA, and Danida and LFA were connected in the minds of interviewees, whether correct or not: "*Danida is the only one who requires us to do LFA*". One frustrated coordinator called strict adherence to LFA-specific terminology and expression "*Danida English – or maybe it's LFA language* [laughter]". For the complex, long-term projects included in this evaluation, LFAs are based on a very simplistic, mechanistic logic "if this is done, then this will happen, and then this" – while the reality is much more complex[43]. Whatever benefits LFAs have, they advocate the wrong kind of idea of how development

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[43] Bakewell, Oliver & Garbutt, Anne (2005). *The Use and Abuse of the Logical Framework Approach*. Sida: SEKA – Resultatredovisningsprojekt.

cooperation works, and the "lockframe" advocates a rigid, formalised plan in a world that is inherently fluid, full of unpredictable events, unplanned changes, and unintended consequences[44].

Reports to Danida are well aligned with the reporting requirements of Ghanaian institutions. In some institutions, the same report that is good for Danida is good for the university, too. Sometimes copy-pasting between Danida's and partner institutions' reports was enough. Where there was critique about monitoring and evaluation or bureaucracy, it was typically about Ghanaian institutions' own bureaucracy.

4.3 Efficiency

Efficiency was assessed from the perspective of how well human, financial, and material resources were utilized to achieve the programme objectives. It also examined the timeliness for delivery of the interventions and how optimally the services, capacities, and potentials were used. Accordingly, the evaluation examined the extent to which research projects were carried out as planned, appropriateness of resources used for administration and monitoring of research, adequacy and functionality of division of labour between the institutions involved in funding, as well as the extent to which research funding was harmonised with other donors.

EQ13. To what extent are the research projects carried out as planned? Are there significant delays or breakdowns?

To a large extent projects are carried out and finished as planned, but delays in projects are frequent. A large number of projects, both FFU and BSU, have been given no-cost extensions – in the sample for this evaluation, none had finished on schedule (Annex 2). Danida has been very understanding of delays, and aware of the bureaucratic, administrative, and technical context in which projects have to work. Typical of projects in a developing country context, delays have been due to, for instance, seasonal availability of materials, getting research permits and ethical approvals, complications with data collection, PhD students' situations, procurement, and administrative problems. PhD students' work plans were not very well streamlined: until recently, PhD research proposals were written relatively late in the process, with only two years planned for field work. Such strict timing can afford very few surprises in the field work, and today fewer and fewer universities strictly divide between coursework and field research.

In a few cases, significant changes to projects were made. In one particular case, the original research project was started by a Danish principal investigator who left the university and the project, which led to frequent changes in project management and uncertainty about leadership structures, communication, and planning between the stakeholders. Whatever was agreed with the original PI changed as that person left, and the new management had little understanding of the reasons for delays, challenges, and agreements made by the first PI. Project leadership was delegated several times to different people, who were not familiar with the trade-offs, bottlenecks, alternative arrangements, and issues in the field. All of this led to communication breakdowns, delays, and budgeting problems with the project.

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[44] Bakewell, Oliver & Garbutt, Anne (2005). *The Use and Abuse of the Logical Framework Approach*. Sida: SEKA – Resultatredovisningsprojekt.

EQ14. Is an appropriate level of resources used for the administration and monitoring of research funding?

Administration and monitoring of Danida grants research does not necessarily constitute an excessive burden to Ghanaian institutions. Neither researchers nor administrators in Ghana consider administration of Danida-funded projects to be especially heavy, but opinions vary (see EQ12 above). Some projects are heavier than others, and unlike many other donors, Danida does not have a budget line dedicated to accounting. In some South-driven FFU projects Ghanaian partners felt that "*accounting puts a lot of pressure on you, and you're expected to turn into a financial accountant even though you're not meant to be one*". In Ghanaian institutions, principal investigators typically do not opt for time off from other duties when they win a large, time-consuming Danida grant, but choose the extra salary instead – which has in some cases led to very heavy workloads: "*Our PIs don't complain much, but they burn out sometimes; so it* [the extra work] *is endangering people's health*". Many frustrations with funding do not originate from Danida, though, but from slow and bureaucratic decision-making structures in Ghanaian universities.

Limited resources for project administration with Danida may stand in the way of sensibly sized projects. There is a tension in Ghana between the need for small, focused projects with the possibility for big bang for the buck, and long-term, large projects, such as centres of excellence that are long-term processes. Although there is clearly room for smaller, very focused projects – "*sometimes you can do with much less*" – Danida is unwilling to go much below ten million DKK project size due to practical reasons. Danida is in favour of large projects not because they believe bigger projects are necessarily better, but because administering many small grants is more tedious for Danida. On the researcher side, opinions were mixed between the need for much smaller and even larger projects, but on the Danida side, the trend is towards increasing project size, not decreasing them.

Using DFC as the single point of contact serves the purpose very well. DFC is the interface to Danida for Ghanaian researchers, who are not very familiar with the other entities (EVAL, FFU, embassies). Researchers are very happy with the administrative services provided by DFC, their speed of response, capacity for organizing events, matchmaking with Danish research units, monitoring and evaluation approach, and facilitation of shorter and longer visits to Denmark. Other evaluations point towards the same conclusion: DFC's management of funding is highly effective[45]. As DFC has proven its capacity, administrators in several partner universities have suggested visits to Denmark to learn from DFC's practices and ways of working. DFC's staff profile is well aligned with their administrative function.

EQ16. Is the research funding harmonised to an appropriate degree with that of other donors?

Synergies are lost to limited efforts to identify similar programs by other donors and coordinate efforts with them. Dozens of similar programs by other donors exist in Ghana alone, including major ones: for instance, DFID and Sida run AuthorAid and Norad runs a programme similar to BSU. Regarding development research, the Paris Declaration principles for maximising donor coordination and harmonisation happen mostly at the headquarters level –

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[45] *Review of the Master Scholarship Programme: Final review report*. December 23, 2015, Ramboll.

which has turned out to be ineffective. Although embassies and donors do frequently meet and discuss coordination, in case of research cooperation that coordination is especially difficult. One key stakeholder said, "*It* [is] *not really donor collaboration;* [it's] *more donor co-existence*". The common lack of coordination is especially clear with development research: one key stakeholder confessed to have little idea of what the French, Canadians, or Germans, for example, are doing in the field in Ghana. Just within University of Ghana twenty financiers of development research have been identified, but none of the heavily budget-cut Danida entities have the resources for assuming responsibility for harmonising between those programmes.

Links between Danida's own funding modalities exist, but they are weak. Although BSU and FFU often have the same people involved, a majority of the program administration feel that they have largely failed to seek synergies. Lack of synergy and coordination between Danida's own instruments as well as other donors has been pointed out by previous evaluations, too[46]. Window 2 is almost completely detached from the rest of the efforts in Ghana. The Ghanaian partners were able to give some limited examples of synergies between some of Danida's funding modalities, such as FFU-funded PhD students taking BSU-run courses and workshops, as well as sharing equipment and infrastructure.

Universities' own coordination and harmonisation efforts show the greatest potential for creating synergies between donor initiatives. The Ghanaian government does not strongly coordinate and harmonise donor funding to development research. One core function of the Ministry of Environment, Science, Technology & Innovation is to ensure coordination in research programmes, but they have found donor funding to research particularly difficult to coordinate, as it would involve coordination of massive numbers of data from single researchers. The government is setting up a National Research Fund, which involves a serious effort to harmonise all research-related initiatives under one organisation – but it is not yet clear when and how that will happen. However, lately the universities, who would benefit the most from coordination of capacity development efforts, have stepped up to the task. CSIR is good at harmonisation within their own institution – with occasional glitches – but is not concerned with what others are doing. Similar, UG, KNUST, and UCC have set up their own units for coordinating research funding and avoiding duplication of efforts.

4.4   Impact

Assessment of the outcomes and impact of support to development research and capacity building focused on the positive and negative, primary and secondary long-term effects produced directly or indirectly, intended or unintended. The main beneficiaries of research funding and how they were affected, the changes resulting from Danida research funding regarding development policies in the related fields and research capacity, the difference made by the research funding for institutions and beneficiaries, and the steps and measures that could be taken to enhance the impact of development research by Danida were examined using the following evaluation questions:

EQ17. Who are the main beneficiaries of research funding? How have they been affected?

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[46] Ghartey, Adom (2017). *Building Stronger Universities (BSU) II Project: BSU II Project Evaluation*. August 2017, Ghartey Associates Limited: Accra, Ghana. *Mid-term Review of Building Stronger Universities Phase II*. Ministry of Foreign Affairs, March 29, 2016.

The stakeholders consider the primary beneficiaries to be South-based researchers, followed by institutions, communities, and countries. The same order of beneficiaries was repeated across all stakeholders, but the perceived benefits have been very different based on modality and project. PhD students in FFU projects talked about experience with new techniques and machines they had only read about earlier, as well as the chance to network internationally, make new friends in the North, and attitude changes towards academic work. In BSU, the beneficiaries were difficult to pinpoint, as a large number of people participated in workshops, courses, and other large-scale capacity building activities. The benefits were a subset of what a recent tracer study of 297 African stipendiaries[47] reported – that study listed critical thinking, personal relationships and international networking, and experience of flat social hierarchies, as well as traditional research competences: scientific and technical skills, grant writing, writing for publications, new ways of teaching and learning, and research ethics.

Interviewees could not think of very many negative consequences of funding. For young mothers, being away from children for prolonged periods was difficult. Some staff members described great difficulties with synchronising their university contracts and Danida contracts: Not only were there gaps between handover from university to Danida, but during their Danida funding period their university contracts ended and other people were hired to fulfil their positions, as a result they came back to find out they did not have a job anymore. A number of FFU project leaders felt extreme stress over project administration, leading even to burn-outs. One project had a bit of a conflict where Ghanaian partners wanted to give exclusive rights to results to private company, which the Northern partners and Danida resisted.

EQ18. What changes have resulted from Danida research funding, notably with respect to development policies in the fields/topics investigated? And to research capacities?

Examples of how research funding has significantly affected policies are few. Most interviewees did not believe their research has had a significant effect on policymaking despite the mandatory policy briefs (see EQ2). One interviewee described an FFU-funded research project that studied the active ingredients in medicine, and found that 70% of drugs sold in Ghana at the time did not have the full dose of the ingredient. The Ministry of Health took action and inspected pharmacies all around the country, pulled counterfeit drugs, and tightened the food and drugs authority's regulations on the import of medicine.

More often than not, societal impact is hoped to happen through releasing policy briefs, results reports, "good stories," websites, and press releases, and then waiting for someone to call and follow-up. Interviews with researchers repeatedly indicated that attitude: "*it's normal that you're never contacted by the government*", "*it's up to the ministries to pick* [the research results] *up*", "*if* [the ministries] *would incorporate* [our policy briefs or findings in their policies] *they wouldn't tell us*", and "*policymakers don't read policy briefs, unless they need it for reference … they're not very hungry searching for information*". There was a wide-spread disillusionment with government's interest in research reports from universities: "*Let me be honest. Most politicians are not scientists. When you write your results up, they're not interested*". One research team had reported the findings to Danida, and waited for Danida to act upon them: "*…after the really good findings are reported there's silence. I was in*

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[47] Lene Møller Madsen & Hanne Kirstine Adriansen (2019) *Opportunities, Challenges – and Bad Weather: Experiences and reflections of African researchers involved in Danida funded research capacity building 1989-2019*. Danida Fellowship Centre.

error to assume that Danida would take actions based on this". And although some government stakeholders gave examples where universities play a role in policymaking, others said that they occasionally outsource some questions to research units, but that integrating research in policy planning is in its infancy.

From the Ghanaian government's point of view, research is more important for studying policy impacts than it is for informing policy planning. The National Development Planning Commission, which is one of the main policymaking bodies in the country, was clear that research becomes very useful in understanding why and how some policies succeed and some fail. The commission is especially interested in research that can establish causal effects, do pre- and post- evaluation, crystallise the impacts of new policies, and explain what works, how, and why. Without objective research, the commission argues, they would have to rely on subjective reports and anecdotal evidence. How to make the government's needs match the universities' ambitions and Danida's modalities was not resolved.

EQ19. What difference has the research funding made for institutions and researchers?

Researchers reported a large number of mostly intangible outcomes of FFU research funding. Given the nature of Danida's support, many outcomes that researchers themselves considered to be the most important were intangible and qualitative, such as prestige, feeling of belonging to an international community, and empowerment in the research world. Those were perceived at several levels: personal, research group, university, research community, and country levels. The benefits listed were numerous; for instance, just one research team listed nine most important benefits they perceived to be a direct outcome of their FFU project (most of which were not the type reported in annual or final reports):

- Visibility and recognition for the university and the research group
- Additional resources
- Improved educational quality
- Transfer of expertise vertically and horizontally
- Improved institutional field work capacity (project vehicles)
- Individual capacities for research
- Improved financial management (experience, facilities)
- International collaboration
- Increased opportunities for winning more funding

Some groups and institutions, especially in South-driven projects, felt strong ownership over the changes triggered by the research funding. One highlight of Danida's funding in Ghana came from a small, new institution, for whom Danida's grant was the first major research grant the institution had won. The institutional impact was much beyond the impact of projects in large institutions where, in one key interviewee's words, complacency had grown to a point that, "*there was this strong view that this* [funding] *was theirs and* [when it was not granted one year] *we stole it from them*". That small institution's research group showed a solid combination of scientific excellence, local knowledge of the nature, emphasis on community development, and more than two decades of research experience in their community. The project's *development* elements were far beyond most other projects, and they had by far the most solid ethics and community

engagement policy for working with vulnerable and marginalised groups involved in the project, evolved over 20 years of working with those groups. Researchers felt strongly that the project was *theirs* – especially as they had no connections to FFU or screening committee members, and had not discussed the project with Danida or even with the embassy: "*our example shows that* [the application process] *is transparent and trustworthy … you can win without knowing any of them* [donors, partners, evaluators] *before*". The success triggered a number of spin-off initiatives and project ideation within the institution, creating intellectual buzz and excitement that scarcely happens in massively funded, large universities:

> "*As the university's first major research project, we believe that if you do a good job, and are able to deliver, then that will set a stage for more opportunities to come. We want to make sure that we do everything right, follow all commitments, do everything by the book. … We get a lot of support from our university's top management and they give us all the necessary support they need.*"

BSU2-related conference was another highlight of Danida funding in Ghana. The University of Ghana organised a fully-fledged research conference for PhD students across Ghanaian universities to present papers, discuss their research, and constructively critique each other's work. The list of presenters is impressive, and it was considered useful as a learning and networking experience. Although BSU2 and BSU3 are widely considered to be superior to BSU1, they also have a narrower focus, which may discourage collaboration, experience sharing, joint events, and lesson-learning (aside from the positive BSU2 conference).

5 Conclusions

Relevance. Danida's support to development research through FFU projects has been well aligned with Ghana's priorities, policies, and strategies. Since 2015 that support has also been well aligned with the sustainable development goals, but as they cover vast areas of life over 17 broad and integrated goals, that alignment is not hard to reach. Despite the apparent alignment, the mechanisms of turning FFU research grants into development actions are under-resourced, and the potential development impact built in research projects is often lost. Although Window 2 topics are potentially useful and relevant for Ghana and economically beneficial for Denmark, some of them seem marginal for the SDGs, and the associated research is often considered to be only marginally "development research."

As a capacity building project, BSU is different from FFU grants, and its alignment with Ghana's national priorities and SDGs relies on universities' own alignment efforts. BSU2 and BSU3 are very relevant for the universities' visions and highly rated by the universities, but the BSU programmes try to do too many things, and risks spreading their resources too thin. In the largest universities that are massively funded by numerous donors, Danida's support is very small by comparison, and questions were raised about increasing complacency and the point of diminishing returns. In contrast, projects won by smaller institutions created excitement, empowerment, ownership, encouragement, and dedication that resonated throughout the whole institutions.

Effectiveness. FFU projects have typically reached the objectives set for them, although frequently with quite a few anomalies in project timelines, which is common in development research. Being carefully vetted at several levels and often partnered by world-class researchers, the quality of research ranged from good to excellent, but the amount of research output varied greatly between projects. Although BSU has the potential to be steered towards institutional visions and aligned with other institutional capacity building, BSU's overall effectiveness suffers from a lack of focus in the programmes and from limited synergies between BSU/FFU initiatives.

That the FFU grant selection is heavily driven by academic credentials, not by development concerns, is evidenced by a great disparity between their effectiveness as measured by research outputs vs. practical applications. The academic measures of success stand in contrast to practicality of projects: There was a feeling that the more a project focuses on Ghana-specific issues a study has, the weaker its potential for high-impact journals. While that does not apply to all studies, the issue was raised many times. Industry integration in projects suffers from pilotitis, as Danida funding ends when products or services are getting ready to be implemented, field-tested, upscaled, and rolled out.

North-driven and South-driven research projects have both shared a feeling of strong and equal partnership across geographical and disciplinary borders. The partners do not straightforwardly favour either modality: Ghanaian researchers like South-driven projects for a number of reasons (such as gaining PI experience, management experience, and better control over the project design), but also dislike them for equally important reasons (such as greatly increased workload,

administrative burden, and a feeling that unequal power relations do not go away by just shifting the locus of project management).

Efficiency. Danida's approach to capacity building through research projects is especially welcomed by the ministries and universities as it complements other funders' types of support. Yet still, Danida's grant portfolio is very broad – from medicine to engineering – and one can tailor a wide variety of research topics to fit under Danida's themes and under Danida's broad conception of development research, which creates a perception of a generic grant agency. What is more, despite many harmonisation efforts, synergies are lost to problems with identifying similar programmes by other donors and coordinating efforts with them as well as with Danida's other funding modalities.

Danida's approach to monitoring and evaluation gathered praise from almost all parties involved, but its few check points compromise the ability to early identify projects that are about to swerve off track. Too few resources are used for screening and evaluation of proposals and for supporting societal and practical follow-ups. The responsibilities between DFC, EVAL, FFU, and embassies are well designed and work well in principle, but is affected by constant budget-cuts. The current staff profiles in each unit are excellently suited for their distinct tasks, but there has been pressure to redistribute some tasks to units that may not be well positioned for those tasks.

Impact. A clear and positive impact of Danida support was strongly articulated by Ghanaian researchers and administrators. Scores of named benefits varied by the modality, project, and stakeholder, and very few negative consequences were mentioned. But the tally of development impact examples was much more modest: instead of active and long-term advocacy, researchers typically released policy briefs, results reports, "good stories," websites, and press releases, and then hoped for someone to call them back or act upon them. The government articulated a number of clear needs for research on policy impacts, but there is no clear plan for how to match the government's particular requests, university visions, and Danida's modalities.

6 Strategic Issues

Discussion point 1. A stronger commitment to the ethics and principles of development studies could strengthen the "development research" aspect of projects funded. The perennial question about what is "development research" cannot be resolved in this evaluation, but with it comes an important notion that is relevant for Danida-funded research: most project documentation for Danida-funded research during 2008-2018 ignore most ethical aspects specific to development studies, such as attention to how the project affects vulnerable and marginalised groups, respect of the dignity of individuals, commitment to local knowledge, and indigenous intellectual property rights. They rarely discuss any community principles of development studies, such as reporting back to communities involved, involving the populations in research design, understanding the needs of the people involved, and sensitivity to cultures, experiences, politics, different ethics, and gender. Development studies have traditionally been very aware of their normative grounding, significant power distances between the participants, sensitive or taboo issues, and context-sensitivity, for instance. In Danida's 2008-2018 portfolio of funded research, those issues central to development studies are rarely mentioned in project documentation.

Discussion point 2. Giving grants to the largest, most established partners carries low risk, but may be just "a drop in the ocean." Some institutions that receive FFU and BSU grants are already among the best on the continent. One can debate whether those institutions still need further advantage over the other institutions, and whether small donor funds would make a bigger difference elsewhere (consider if only the three largest of Denmark's more than 30 higher education institutions would get support). There are examples of significant positive impact and transformative institutional change in smaller, upcoming institutions for an FFU grant that would have been just another project for the old, established ones. Stakeholders should also discuss whether there should be a point after which a research program or institute does not need donor funding anymore. Some FFU-funded research institutes have proven to be capable of winning some of the most competitive (EU) research funding in the world, and all donors and grant agencies want to use those institutes as an example of funding they have supported. Whether world-leading institutes are in need of development aid can be justified both ways, but it is important to have that discussion.

Discussion point 3. The stakeholders should discuss the balance of academic excellence and relevance to development problems, which is currently tilted towards the academic side. The stakeholders should discuss how much weight is given to embassy recommendations on relevance and to FFU's recommendations on academic excellence – and what balance between the two is required for Danida to fulfil their core function instead of becoming another generic research grant agency. Furthermore, there should be a discussion on whether there is a need to reverse the sequence, with FFU doing the initial screening of academically acceptable projects, and embassies and EVAL – who are at a better position to work strategically and to fulfil Denmark's development policy objectives – selecting the ones that are the most relevant to the Danish overall strategy and policies and the most relevant to development problems.

Discussion point 4. The current practice has led FFU funding to occasionally pile up on the same teams and the same researchers, groups, and departments. Danida and other stakeholders could discuss whether a disproportionate concentration of projects to some

departments is the intention of Danida's support to development research funding. The twin points of complacency and diminishing returns that apply to BSU, also apply to some of the repeatedly funded FFU areas: whether the same established groups should be funded over and over at the risk of diminishing returns, or whether higher-risk higher-impact projects and new and upcoming groups should be given more weight is another point of discussion for the stakeholders.

Discussion point 5. Coordination and harmonisation with other similar initiatives could be left to grant applicants; it does not need to be a task for Danida or the embassies. Donor coordination and harmonisation has turned out be very difficult at the strategic level, but the task can be carried out differently. The stakeholders can discuss whether preference in FFU W1/W2 could be given to the projects that are best able to map the current state of similar initiatives in Ghana, reach out to them, and seek synergies. Similar, if synergies are needed between FFU and BSU, projects that can clearly point out where they work with existing FFU/BSU projects can be given preference. As long as Ghana's National Research Fund is not yet operational, coordination, and harmonisation must be conducted in a decentralised manner.

Discussion point 6. Wishful thinking is not enough for practical impact. As long as there is no specific funding or clear plans for the practical impact of FFU-funded research, the chances of that happening spontaneously are low. Alignment with SDGs, policy briefs, results reports, "good stories," websites, and press releases are the first steps, but the prospects for significant impact are greatly diminished if funding stops after the first successful pilots, without substantial funding reserved for roll-out, field-tests, promoting the results, training people, advocacy, or disseminating results. The stakeholders should discuss if they consider it fruitful to earmark a specific percentage of each project to development impact.

Discussion point 7. Danida does not have a distinctly unique profile as a funder of development research and capacity building. The broadness and sheer number of SDGs, combined with changing thematic areas in Danida's calls, have made it possible to fit an extremely broad spectrum of research topics under Danida's thematic areas over the years. Although Danida is perceived to be different from many other major donors in that Danida does not grant funding to, for example, infrastructure, Danida still lacks a unique character as a funder of development research and capacity building. Instead, Danida is perceived as a quite generic research grant agency that funds everything from medicine to engineering, biology, and anthropology. The stakeholders could discuss whether there is a need for a clearer profile or a niche where Danida could become a major player – for instance, by narrowing down the definition of "development research" to that of development studies.

Discussion point 8. There are a large number of overlapping modalities and overlapping activities under those modalities. The stakeholders could discuss whether the current number modalities and activities are optimal, especially in the case of BSU. There are overlaps; for example, PhD training and course development are found under different modalities. There surely is a role for small, targeted activities to play, but such activities would benefit from being well connected and integrated within the rest of Danida's support. The more mechanisms for support, the higher the chance of duplicating efforts already undertaken by another donor, another university initiative, another partnership, or by Danida itself.

Discussion point 9. Sustainability of the development research outcomes. The lack of links and commitment between development research interventions, industry, and Ghanaian government undermine long-term sustainability of the interventions. Dispersion of research groups after funding dries up is a sign of project economy. The stakeholders could discuss ways of focusing research interventions to better support long term sustainability. This can be linked to uptake, industry-research linkage, policy-research linkage, research dissemination, and information sharing as well as formative assessment of progress with impact in mind. Continuous, consistent, and systematic awareness building can help to ensure long-term sustainability of the interventions.

Annex 1: List of Interviewees

Name	Role in project	Current Designation	Current Institution
1. Prof Robert C. Abaidoo	BSU I/ BSU II/ BSU III Coordinator/PI /Supervisor	Director, Office of Grants and Research	KNUST
2. Ms Sika Abrokwa	FFU (Research partner)	Research Assistant, Centre for Coastal Management (CCM)	UCC
3. Prof Ahmad Addo	BSU 1/FFU (PhD Supervisor)	Head of Department, Dept of Agric & Biosystems Engineering	KNUST
4. Prof Andrew Anthony Adjei	BSU I/BSU II (BSU1 & BSU2 Coordinator/PhD Supervisor)	Coordinator Worldwide University Network/Coordinator Vice Chancellor's Strategic Teams, School of Biomedical & Allied Sciences	UG
5. Mr Thomas Adjei-Agyapong	FFU 1 (MPhil Supervisor/PhD Student)	Lecturer, Dept of Crop & Soil Sciences	KNUST
6. Prof Daniel Adjei-Boaten	BSU II/FFU (Project Coordinator)	Associate Professor, Department of Fisheries and Watershed Management	KNUST
7. Mr Thomas Adjei-Agyapong	FFU (PhD Student/Project Collaborator)	Lecturer/ Student, SRI-CSIR	CSIR
8. Prof Kwame Adjei Frimpong	FFU (WEBSOC, Coordinator/PI)	Head, Dept. of Crop Science	UCC
9. Mrs Hannah Adom Eyison	BSU (BSU II/BSUIII Project Administrator)	Project Administrator, Office of Grants & Research (OGR)	KNUST
10. Dr Genevieve Etornam Adukpo	FFU (Member, National Screening Committee)	Director, Centre for Gender Research, Advocacy and Documentation (CEGRAD)	UCC
11. Ms Nana Adwoa Kunadu Dsane	BSU 1&2/FFU (Administrator)	Administrator, Pre & Post Award Unit, Office of Research and Innovation Development (ORID)	UG
12. Dr Akwasi Afrifa Acheampong	BSU (BSU I PhD student)	Lecturer, Geomatic Engineering	KNUST
13. Ms Salasi Agamah	BSU/FFU (Administrator)	Administrator, ORID	UG
14. Dr Frank K. Agyei	BSU (BSU I PhD student)	Lecturer, Geomatic Engineering	KNUST
15. Prof Denis Worlanyo Aheto	FFU (FFU2 Project Manager)	Director, CCM	UCC
16. Dr Robert Aidoo	FFU (FFU Project Leader)	Snr Lecturer, Dept of Agric Ext	KNUST

17. Dr Philip Antwi Adgyei	BSU 2 (BSU 2 Activity Holder)	Snr Lecturer, Department of Environmentatal Science	KNUST
18. Mr Samuel Yao Ahorhorlu	BSU 2 (BSU2 PhD Student)	PhD Student, Biochemistry, Cell & Molecular Biology	UG
19. Ms Amma Appah	BSU 2 (Administrator)	Administrator, ORID	UG
20. Dr Gifty Boakye Appiah	FFU (FFU PhD Student beneficiary)	Lecturer, Root & Tuber Value Chain	KNUST
21. Ms Ohene Asa Bosompem	BSU3 (PhD Student/BSU3)	PhD Student, Institute for Environment and Sanitation Studies	UG
22. Ms Eunice K. Asamoah	BSU 2 (PhD Student, BSU 2)	PhD Student, Department of Marine Fisheries	UG
23. Dr Ruby Asmah	FFU (Research Collaborator)	Director, Water Research Instute (WRI)	CSIR
24. Ms Judith Awo Semabia	-	Director, Directorate of Innovation, Science & Technology	Ministry of Environment, Science, Technology & Innovation (MESTI)
25. Mr Jonathan Azasoo	-	Dep Director, Policy Planning, Monitoring & Evaluation	National Development Planning Commission (NDPC)
26. Ms Empi Baryeh	BSU 1 & 2 (BSU I & 2 Assistant Coordinator/ part of the team that designed BSU III)	Assistant Registrar/Administrator, Medical School	UG
27. Dr Emmanuel Boabeng	BSU1 (KNUST BSU I PhD Student beneficiary)	Lecturer, Economics	KNUST
28. Dr Yaw Boakye Agyeman	FFU Window 1 (Lead Person, Socio-Economic & Livelihood Dynamics)	Lecturer, Dept of Ecotourism & Hospitality	University of Energy & Natural Resources (UENR)
29. Dr Lawrence Borquaye	BSU 2 & 3 (BSU 2 & 3 Laboratory/ WP4 coordinator)	Snr Lecturer, Chemistry	KNUST
30. Prof Godfred Darko	FFU (FFU Sheathe Project Coordinator)	Lecturer, Chemistry	KNUST
31. Her Excellency Ms. Tove Degnbol	-	Ambassador of Denmark to Ghana, Previous Head of Department, Technical Advisory Services (MoFA)	Danish Ministry of Foreign Affairs
32. Dr David Dotse Wemegah	BSU 1 (BSU 1 PhD Student beneficiary & Project Coordinator BSU 2 & 3)	Snr Lecturer, Physics Dept	KNUST
33. Dr Peter Dwumah	BSU 1 (BSU I PhD Student beneficiary)	Snr Lecturer, Dept of Sociology and Social Work	KNUST

34. Dr Edmund Ekuadzi	BSU 2 & 3 (BSU 2 & 3 Laboratory/ WP4 coordinator)	Snr Lecturer, Pharmacy	KNUST
35. Dr Ulrika Enemark	PI	Associate Professor, Department of Public Health	Aarhus University
36. Mrs Lydia Essuah	-	Director, Policy Planning, Monitoring and Evaluation (PPME)	MESTI
37. Dr Seth Etuah	FFU PhD Student beneficiary	Lecturer, Department of Agricultural Economics, Agribusiness and Extension.	KNUST
38. Dr Patrick Fordjour	BSU 2&3 (BSU 2 & 3 Work Package (WP) leader)	Sr. Lecturer, Theoretical and Applied Biology	KNUST
39. Dr John Boulard Forkuor	FFU (FFU PhD Student beneficiary)	Lecturer, Dept of Sociology and Social Work	KNUST
40. Ms Pernille Friis	-	Research Programme Manager, DFC	MoFA
41. Ms Bente Ilsøe	-	Research Manager (retired), DFC	MoFA
42. Mr Lars Arne Jensen	-	Research Programme Manager, DFC	MoFA
43. Dr Søren Jeppesen	Spokesperson for Association of Development Researchers	Associate Professor	Copenhagen Business School
44. Dr Vincent Kusi-Kyei	BSU 1 (BSU PhD Student beneficiary)	Assistant Lecturer, Forest Resources Technology	KNUST
45. Dr Kwadwo Kusi Amoah	FFU (FFU Work Package 4 Agric Resource Management PhD Student)	Snr Lecturer, Department of Crop Science	UCC
46. Prof Peter Kwapong	FFU (FFU Supervisor)	Head of Department, Dept of Biological Sciences	UCC
47. Dr Boateng Kyere	FFU (FFU AX PRWECS ANN Project)	Associate Professor, Silviculture and Forest Management	KNUST
48. Dr Precious Mattah	FFU (FFU Project collaborator)	Director, CCM	UCC
49. Ms Mette Melson	-	Deputy Head, Technical Quality Support (TQS)	MoFA
50. Dr James Osei Mensah	FFU (FFU PhD Student beneficiary)	Sr. Lecturer, Agricultural Economics, Agribusiness and Extension	KNUST
51. Dr Sam Newton	BSU 2 (BSU 2 PhD Supervisor)	Sr. Lecturer, Dept of Global & International, School of Public Health	KNUST
52. Dr Emmanuel Newton	-	Head, Policy Planning, Monitoring and Research, National Council for Tertiary Education (NCTE)	Ministry of Education

53. Prof Fred Nimoh	BSU 2 (Sustainable Sanitation Project (SUSA) Ghana Project PhD student/BSU 1&2 team member)	Head of Department, Agric Economics, AgriBusiness & Ext	KNUST
54. Mr Henning Nøhr	BSU (Chief consultant (development research, BSU), EVAL, MoFA)	Chief consultant, Development research, BSU), EVAL	EVAL, MoFA
55. Prof George Obeng-Adjei	BSU 3 (BSU 3 Coordinator)	Director, ORID/BSU III Project Coordinator, ORID	UG
56. Prof William Oduro	BSU 1, 2 & 3 (BSU 1, 2 & 3 Team Leader)	Lecturer, Renewable Natural Resources	KNUST
57. Dr Michael Ofori	Member, BSU Steering Committee	Head of Department, EM/Histopathology	UG
58. Dr Kwasi Ohene-Yankyera	FFU (FFU 1 Project Leader/Supervisor)	Snr Lecturer, Econ Agric Business & Ext	KNUST
59. Dr Paul Osei-Tutu	FFU (FFU Work Package Leader)	Lecturer, Forest Resources Technology/Renewable Natural Resources	KNUST
60. Prof Kwadwo Owusu	Member, BSU Steering Committee	Head of Dept, Department of Geography & Resource Development	UG
61. Mr Niels Ricther	-	Chief Advisor, Multilateral Assistance	MoFA
62. Mr Jan Wesarg Riemer	FFU 2 (Senior technical advisor Growth and Employment/Strategic Sector Cooperation (Window 2))	Senior technical Advisor , MoFA, Growth and Employment/Strategic Sector Cooperation (Window 2)	MoFA
63. Dr Peter Sanful	FFU Window 1 (Project Coordinator, Window 1 (Lake Bosomtwe Climate Change Adaptation Project)	Head of Department, Dept of Ecotourism & Hospitality	University of Energy & Natural Resources (UENR)
64. Ms Anitha Sharwa	-	Scientific Officer, Innovation Fund	
65. Dr Peter Vilhelm Skov	PI	Associate Professor, National Institute of Aquatic Resources	Technical University of Denmark
66. Dr Annette Skovsted Hansen	FFU member	Associate Professor, Global Studies and History	Aarhus University
67. Ms Cecilia Smith	BSU 2 (BSU 2 PhD Student)	PhD Student, Biochemistry, Cell & Molecular Biology	UG
68. Dr Kingsley J. Taah	FFU (FFU Work Package 4 WEBSOC PhD Supervisor)	Snr Lecturer, Dept. of Crop Science	UCC
69. Dr Anders Thygesen	PI	Department of Chemical and Biochemical Engineering	Technical University of Denmark

70. Dr David Wellington Essaw	-	Head of Dept/Snr Lecturer, Dept of Environmental, Governance & Sustainable Devt, Sch of Devt Studies, College of Humanities & Legal Studies	UCC
71. Dr Michael Whyte	BSU	Associate Professor Emeritus, Inst of Anthropology	University of Copenhagen
72. Dr Edward Yeboah	Partner	Director, SRI-CSIR	CSIR

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Annex 3: List of Projects by Interviewees

#	Window	Duration	Budget	Title
BSU1-KNUST	BSU	2011-2013	*60 000 000	Building stronger universities
BSU2-KNUST	BSU	2014-2018	15 000 000	Building stronger universities
BSU3-KNUST	BSU	2017-2021	13 000 000	Building stronger universities
BSU1-UG	BSU	2011-2013	*60 000 000	Building stronger universities
BSU2-UG	BSU	2014-2020	15 000 000	Building stronger universities
BSU3-UG	BSU	2017-2021	13 000 000	Building stronger universities
17-M03-DTU	W2 Research in growth phase 2	2018-2020	4 999 906	Research-based management of Gulf of Guinea
13-01-AU	Strategic Research Coop. Phase 2	2014-	9 999 998	Green Cohesive Agricultural Resource Management WEBSOC
19-08AU	Postdoc	2009-2014	4 920 000	Health Insurance in Ghana and Tanzania: Addressing Equity …
12-P08-GHA	Pilot research coop projects (pre-2013)	2013-2017	5 019 527	Strengthening root and tuber value chain in Ghana
13-P04-GHA	South-driven projects (pre-2017)	2014-2019	4 995 432	Effects of Climate Change on Lake Volta Resources (VOLTRES)
18-02-GHA	W1 Research in priority phase 2	2018-2022	9 959 963	Building Resilience of Lake Bosumtwi to Climate Change
16-P03-GHA	Development Research phase 2	2016-2021	6 962 548	Xenobiotics and heavy metals in Ghana
11-P21-GHA	Pilot research coop projects (pre-2013)	2012-2016	5 076 499	Enhancing the performance and growth potential of street-food
11-P16-GHA	Pilot research coop projects (pre-2013)	2012-2014	4 999 999	Technological and Market Options for Managing Climate Change…
13-02KU	W1 Research in priority phase 2	2014-2018	9 990 538	Valorizing Green Growth in Africa (VALOR)
18-14-GHA	W1 Research in priority phase 2	2019-2023	11 738 622	Access-Authority Nexus in Farmer-Herder Conflicts (AAN)
10-050KU	Larger strategic projects	2010-2015	10 294 890	Sustainable Latrine Services for the Urban Poor in Ghana
16-P02-GHA	South-driven projects (pre-2017)	2016-2020	9 990 278	Climate smart cocoa systems for Ghana (CLIMCOCOA)
13-P01-GHA	South-driven projects (pre-2017)	2014-2017	4 999 162	Sustainable Fish Feed Development in Ghana
11-091RISØ	Smaller projects: PostDoc	2014-2015	2 572 541	Biobased electricity in developing countries