

Phase 2 invitation and guidelines 2019 – Window 2

Research in growth and transition countries

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1. Introduction

The Ministry of Foreign Affairs of Denmark (MFA) provides grants for development research activities as part of Denmark’s international development cooperation. While the Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 constitute an overall thematic framework for development cooperation and research, the overall objective of the Danish support to research cooperation is to contribute to new solutions with new knowledge and new approaches, and to increase the countries’ capacity for creating and applying new knowledge themselves. In accordance with this objective, grants will be awarded to strategic research cooperation which generates new knowledge relevant to the needs and strategies of partner countries, to Denmark’s cooperation with these countries as well as including substantive elements of research capacity strengthening.

Within this framework, the MFA invites **Phase 2 applications** for grants related to development research in growth and transition countries. Phase 2 is the submission of a full application only by those selected (“prequalified”) in Phase 1 in 2019.

The total budget available for this research window in 2019 is approximately DKK 60 million. The expected duration of the projects is from 18 to 36 months with a maximum grant of 5 million DKK for each project. These initial (pilot) projects may be eligible for a subsequent funding phase on the basis of a competitive application round, assuming approval of a funding envelope for additional grants.

The Phase 2 guidelines for Window 2 is available below, for Window 1 please refer to <https://dfcentre.com/research/calls-for-applications/>.

The deadline for submission of Phase 2 applications is **23 August 2019 at 12:00 hrs.** (Danish Time). Applications must be submitted in English and electronically via DFC's e-application system (efond).

The Danida Fellowship Centre (DFC) administers the MFA's support to development research. For questions concerning the application procedures and in general relating to this Call for applications, please contact the Research Unit at research@dfcentre.dk. More information is available under "Useful links", including advice on how to make a good application by the Consultative Research Committee (FFU).

2. Research themes

The global 2030 agenda and the seventeen United Nations Sustainable Development Goals (SDGs) constitute an important framework for development cooperation and research. Therefore, it is envisaged that research projects and collaboration with respect to the selected research themes will be undertaken within the context of the relevant SDGs and that these will be reflected in the justification for the research proposals.

The thematic focus areas of the Call are country-specific and they have been determined on the basis of the focus of Danish strategic cooperation in the countries. The country-specific themes are available in Appendix A.

See under "Useful links" for information concerning the Danish Strategic Sector Cooperation and the role of sector counsellors.

3. Assessment criteria

The Consultative Research Committee for Development Research (FFU) is tasked with assisting the MFA by providing professional and scientific advice in relation to the Phase 2 applications. See under "Useful links" for more information.

The FFU assesses the Phase 2 applications on the basis of four criteria: scientific quality, relevance, the potential effect, and feasibility.

The scientific quality is assessed on the basis of the following sub-criteria:

- *The research experience and qualifications of the project coordinator and the team;*
- *The originality and innovative nature of the project, in terms of generating new knowledge.*

The relevance is assessed on the basis of the following sub-criteria:

- *The focus of the project is well-defined with respect to the announced research theme in the chosen partner country;*
- *The project contributes to the overall objectives of the Danish strategic sector cooperation in the country;*
- *Preferably, the project includes public and private sector partners.*

The potential effect is assessed on the basis of the following sub-criteria:

- *The potential direct effects with respect to the selected sustainable development goal (s);*
- *The effects of the project in terms of the partnerships with public and private sector which could take the research to the next level;*
- *Strengthened research capacity, which should add value for both the Danish and the partner institution.*

The feasibility is assessed on the basis of the following sub-criteria:

- *The management structure for the research project;*
- *The project coordinator's managerial skills and previous experience with research in developing countries;*
- *The proposed design and activities.*

It must be clear that the proposal constitutes a genuine research project rather than being only registration of data, commissioned research, a product development, demonstration project, technology transfer, consultancy, or development project.

Phase 2 applications will be forwarded to international scientific peer reviewers for review of the scientific quality of the proposed project. To facilitate the peer reviewing process, applicants are requested to suggest suitable peer reviewers within their scientific field in the e-application form.

The scientific quality of the Phase 2 applications will be assessed by the FFU and approved by the Innovation Fund Denmark, cf. section 5, subsection 1 of the Act on Innovation Fund Denmark no. 306 of March 29, 2014, amended in Act no. 384 of April 26, 2017.

The MFA will select the projects for funding based on the FFU assessment of the applications according to the above criteria. If the total number of qualified applications exceeds the available funding allocation, the MFA will select the best projects based on the FFU assessments of the above criteria.

4. Project description

The application must contain a project description (Appendix A), which must be structured according to the headings indicated below and in the stated order. All headings must be used and none added. It is important to ensure that the application is clear and focused and although there are no requirements regarding the length of each section in the project description, the project description as a whole must not exceed 10 pages, exclusive of references which are in addition to the 10 pages.

The pilot projects must contain actual research activities addressing a research question within the announced research theme in the chosen country. Preparation of a possible application for a subsequent funding phase could constitute part of the pilot project.

Heading 1: Title and project coordinator

Project title and name of project coordinator as stated in the electronic application.

Heading 2: State of the art and rationale

As an introduction to the objectives of the research, this section should include a state-of-the-art literature review and an outline of how new knowledge will be generated on the topic concerned. This will highlight how the proposed research relates to prior and on-going investigations on the chosen theme.

Heading 3: Relevance

A brief summary of the importance of the project with respect to the national sector policies, Danish Strategic Sector Cooperation, and the Sustainable Development Goals (SDGs).

Heading 4: Objectives

Objectives are defined as what the project aims to achieve in the long term. Achieving the objectives is the impact of the research. Objectives and possible associated research hypotheses must:

- Drive the “state of the art” forward;
- Address clearly defined research issues;
- Provide new knowledge and be innovative;
- Include substantive elements of research capacity strengthening.

(The objectives must correspond to the objectives in the LogFrame in the e-fond application form).

Heading 5: Expected outcomes and outputs

The main scientific results and research capacity building initiatives must be listed. Outcomes are what the project aims to achieve in the short and medium term and are the result of project outputs as well factors beyond direct control (such as policy changes and/or practices of stakeholders/users of project outputs). Outputs are produced as a direct result of activities, e.g. seminars and publications.

(The outcomes and outputs must correspond to the outcomes and outputs in the LogFrame in the e-fond application form).

Heading 6: Methodology

In describing the methodology, design, and research capacity strengthening, this section should include:

- Methods and project design to address the selected objectives;
- Approaches to research capacity development;
- Ethical considerations (where relevant);
- How the research adheres to Danish and partner country requirements concerning research permits and provision of information to relevant authorities.

Heading 7: Overview of the research plan

This section will include the proposed timetable, milestones and resource allocation by the participating parties. Joint fieldwork should be described both in terms of time allocation for researchers and in proposed work packages. Perspectives for continuing the research beyond the pilot phase may also be described.

Heading 8: Organisation and management

Based on a summary of the scientific and managerial competences of the research partners, this section will include outlines of:

- Research and institutional capacities;

- Management, coordination and collaborative arrangements proposed for the research project including with the Strategic Sector Cooperation Partners (and advisers, as appropriate);
- Coordination with other related research capacity strengthening initiatives.

Heading 9: Capacity strengthening

This section will include a description of how the strengthening of research capacity will increase the quality and competitiveness of participating institutions (research environments), notably through:

- Facilitation of access to and use of scientific literature;
- Training of senior researchers and teams to design and manage research and to produce, document, and disseminate results;
- Support for equipping and running laboratories and other facilities;
- Access to databases and libraries.

Heading 10: Partnerships

In terms of collaborative partnerships, this section should outline how the research will draw on and cooperate with related international projects, including participation in research networks, conferences, etc. Perspectives for collaboration with public and private sector must also be highlighted.

Heading 11: Publication and dissemination strategy

A dissemination plan will be outlined, indicating the expected results and how these will influence policies and actions, as well as joint publication and knowledge sharing. The planned dissemination outputs should be clear, including how the project will engage with the stakeholders and how the main outputs will be communicated.

List of references

Attach a list of principal publications, etc. used in the research project description.

5. Participating researchers and institutions

Experience shows that the project coordinator plays a key role in ensuring that a research collaboration project is successful. An effective engagement/ involvement of the project coordinator will entail a substantial workload, noticeably at the beginning of the project.

All researchers (including postdoc) of all participating institutions and partners including subcontractors must be named in Step 1A, as well as listed in Appendix B along with their CVs attached. CVs of private sector participants must be attached together with the profile of the partner company/private sector institution.

It is important that the project coordinator and the research team document relevant scientific merits/qualifications and research background within the research topic applied for. A project coordinator may apply for more than one project, but only one project per project coordinator may be approved for this funding window.

In order for research partners to benefit from the collaboration, partnerships should be equal, and partners should be able to contribute actively in preparing the Phase 2 application. Research applications which have been prepared without the active involvement of partners in growth and

transition countries will not be approved. Other important aspects of equal partnerships include joint fieldwork, joint publishing, knowledge sharing, access to databases and libraries, etc.

Approximately the same level of researcher work time (in man months) on the project is expected between Danish researchers and researchers in the partner country.

It is strongly encouraged to involve partners from the private sector and national authorities in the partner country or in Denmark in the research project, and grant funding can be used for direct costs in relation to the project activities but not overhead expenses. Such partners are encouraged to contribute with additional resources (funding or in-kind) for the projects. International research institutions and research institutions in countries outside Denmark and outside the growth and transition countries can equally be supported by the grant for their direct input to the project activities but no overhead.

It is furthermore expected that a project advisory committee is established from the outset of the project, including key stakeholders such as the sector counsellor at the relevant Danish Embassy, and key persons involved in Strategic Sector Cooperation within the theme, and that meetings are held with the committee at least 1-2 times yearly.

As the project duration is only up to three years, it is not envisaged that PhD studies can be included. Direct input of ongoing PhD studies may be included if justified how this contributes to the project is provided.

Education of **Masters Students** in the growth and transition countries, but not in Denmark, may be supported if convincing arguments are presented.

Travel grants for Masters Students enrolled at Danish higher education institutions doing field studies as part of their Masters' thesis can be included in the project budget. Such travel grants must be used for the student to visit the project partner and carry out field studies within the scope of the project.

6. Application process in Phase 2

Phase 2 – 2019-20	Aug	Deadline for Phase 2 applications: 23 August 2019 – 12:00hrs Danish Time DFC administrative screening
	Sept - Oct	Peer reviewing (normally two for each application) and applicant hearing
	Nov - Dec	FFU's assessment of Phase 2 applications
	Dec	Innovation Fund Denmark's approval of assessment MFA selection Reply to all applicants, rejections and Letters of Commitment
	Jan - Feb	Budget reallocations, etc. Letters of Grant Granted projects endorse Letter of Grant and can start up project activities

7. Project costs

The maximum grant is DKK 5 million for a pilot project of 18-36 months' duration. The budget must ensure that all costs are covered and that sufficient resources are allocated to the implementation of the project. Budget margins are not accepted. It is not possible to apply for supplementary funds within the project period, and funding cannot be granted to cover costs already incurred.

The budget (Appendix C) must contain a budget for each participating institution. The budget forms must be filled in with the amounts applied for (not including co-funding). The budget for international research institutions and partners in countries outside the growth and transition country, as well as private sector partners and national authorities, can only include salaries and travel expenses covering direct costs to the project activities, and no overhead can be charged.

It is expected that research institutions in partner countries will provide a monetary or in-kind contribution to the project, but no fixed percentage has been set. In a possible subsequent project after the pilot project, it would be expected that a substantial co-funding is provided from public or private partners. Co-funding may be provided in the form of monetary contributions or as payment 'in kind', i.e. by making equipment, staff, etc. available, in which case this should be detailed in the budget notes. Co-funding from the Main Applicant is encouraged.

For secondary partners with a limited budget it can be considered to include such as project subcontractors. In this case, the budget of the subcontractor can be included in the budget of the Responsible Institution or a main partner then being responsible for the accounts. Such arrangement should be clearly explained in the budget notes.

When planning the project and setting up the budget, you may consult the current General Conditions for on-going FFU projects at link <http://dfcentre.com/research/general-conditions-and-forms-for-research-projects-2/> The approved budgets and projects must be in accordance with and follow these conditions.

8. Eligible budget items

Salaries and emoluments

Salaries for staff must follow the appropriate tariffs applying to the local institution in question. It is not accepted that staff is paid allowances on top of the salaries already received from the institution. Salaries are either compensation/ replacement salary paid to the institution for the time the staff allocates to the project, or compensation payment for over-time, either hourly or performance based. In the case of over-time payment, a written agreement must be entered between the institution and the researcher. Double salaries and payment of consultancy fees will not be accepted.

With the signature of the Head of Institution/Department, the responsible institution verifies that the budgeted project salaries and fees comply with applicable collective labour agreements. The responsible institution must also ensure that current tariffs for remuneration at all partner institutions are applied and that salaries in the budget are based on gross salaries.

It is the responsibility of the applicant institution to ensure that the budget for salaries includes any additional allowances, holiday allowances, labor market pension schemes, pension contributions, salary increases triggered by labor market agreements and seniority, etc. No additional funding can be provided in connection with illness and parental leave, but time extensions are possible according to the rules in force.

The participating institutions are responsible for insurance of project personnel.

Tuition fees/ educational grants

Tuition fees and educational grants can be covered for Masters Students from growth and transition countries. The educational grants must follow the rules and regulations of the institution in question. The educational grant is placed at the disposal of the institution and is intended to cover expenses such as supervision and courses. Such expenses can thus not be covered under other budget lines.

Expenses for trips and fieldwork

Project staff can only receive per diem and other reimbursable costs according to their institution's rules, regulations, and cost-norms. However, should local per diem rules exceed the applicable rates according to Danish rules then the Danish rules must be applied. The cheapest fare should equally be applied. Budgeted travel must be justified and directly related to project activities. The table for planned travel, being part of the budget form, must correspond with the travel expenses.

If a researcher is not covered by personal insurance or similar, an amount for health insurance per month for travel outside the home country may be included.

Travel grants (direct travel costs and accommodation expenses) for Masters Students from Denmark can be included in this budget line.

Research equipment and material

All purchases must be in accordance with international and national procurement regulations. The budget items for project and research equipment cover the expenditure of acquiring necessary equipment, apparatus, literature, IT equipment, insurance, etc. A project vehicle can only be purchased for local transport in exceptional cases where there is a need for frequent field trips, and

where it is obviously less expensive than other forms of transport. If purchase of a project vehicle is included, the budget notes must include a comparison of the cost of purchasing and using the car compared with other forms of transport.

Project expenses must not include VAT, in case it is possible for the South/Danish institution to receive VAT refund.

Projects administered by a government institution should apply the rules of state self-insurance and, outside Denmark, otherwise secure the insurance of equipment.

Publication, dissemination and outreach

Under this budget item, expenditure for ongoing, current or subsequent dissemination and publication of research findings may be included, for instance:

- Publishing of reports, etc.;
- Minor publications for local dissemination;
- Production of materials for dissemination through a website and other electronic media;
- Participation in conferences if the applicant delivers a poster or paper presentation;
- Holding of workshops and seminars (local expenses);
- Alternative forms of dissemination.

Publication of research results in open access journals is strongly encouraged and the costs should be included in the budget.

Travel expenses and salaries in connection with workshops and conferences must be included under their respective budget lines.

Overhead/administration fees

For project grants administered by a government institution or a self-governing institution registered as having an account on the Appropriations Act, the Ministry of Finance's rules governing grant-financed research activity included in the Ministry of Finance's budget guidelines are to be followed. This implies that project support granted through a process of competition, the overhead as a maximum follow the rates below.

Institution/enterprise type	Overhead
Danish institutions (including universities and government research institutes) which are subject to the rules regarding grant-funded research activities in the Danish Ministry of Finance's budget guidelines, and which are authorized to carry out grant-funded research activities	44 %
Danish Authorized Technological Service Institutes (GTS-institutter)	20 %
Danish institutions meeting all the following criteria: <ul style="list-style-type: none"> • Receive and are expected to continue receiving a fixed state subsidy of minimum 25 % (measured in relation to total annual turnover) to cover operating costs; • Are non-profit institutions which do not seek to generate profit, and where any profit may not be distributed among the owners; • Carry out research as a central purpose. 	20 %
Public Danish hospitals	3.1 %

Danish state-recognised museums (cf. The Danish Museum Act)	3.1 %
All other Danish institutions and companies	0 %
South-based research institutions (non-profit institutions depending on local conditions)	Max. 20 %

Overheads are calculated as a fixed percentage of direct costs. Direct costs are costs incurred as a direct result of research activities. No overhead can be charged by the Danish institution for funds transferred to their partners.

The following general administration costs are considered to be covered by the overhead:

- Management involvement in the co-operation and coordination of the project;
- Recurrent office and office set-up expenses (office furniture, rent, cleaning, stationery, transport, electricity and water, support staff, and other general operating expenses);
- Expenses related to staff carrying out general administrative tasks, such as budget and accounting tasks.

Additional funds cannot be allocated to these types of expenses over and above the overhead.

Overhead cannot be included for international partner institutions, institutions outside the Danida priority/partner countries, private sector partners and national authorities; as such institutions can only be supported for their direct costs related to the project activities. For institutions not eligible to charge overhead of direct costs, a gross salary rate must be used and follow the appropriate rate of the institution.

Research stays in Denmark of up to six months' duration for researchers from partner institutions

DFC's administrative services for stays in Denmark for senior researchers are optional. The budget figures for 2019 are as follows:

- Accommodation at the DFC hostel – DKK 325 per night.
- Discount for periods of more than 30 days: DKK 250 per night.
- Allowances – DKK 1,700 per week.
- Air ticket – budget figure of DKK 9,000 per trip, the actual expenses will be invoiced.
- Residence permit (over 90 days stay) – DKK 1,900 for PhD and Masters' students (for each renewal – also for extensions).
- Danida Fellowship Centre's administration – In addition to the above budget figures, DFC charges an administration fee of DKK 6,000 (incl. VAT) per arrival.

Allow for an annual increase of app. 2.5% on all the budget figures above. The expenses incurred by DFC are not subject to the 44% overhead.

Audit

The annual accounts (Danish and partners') must be audited by an external auditor. If the Danish institution is subject to audit by the National Audit Office of Denmark, a management endorsement to this effect can substitute an annual audit. A statement certifying that the partners' accounts are audited without any qualifications must be included in the annual accounts.

The final accounts must be externally audited, and the audit is to include the entire set of project accounts, including all project partners' accounts. The maximum amount to be used for audits is DKK 30,000 per year and DKK 50,000 for the final audit. The funds for audit are earmarked. Additional expenses will not be accepted, but must be borne by the institution's overhead. The audit is not subject to overhead.

9. E-application information and content

The e-application system is accessible from DFC's website via the following link:
<http://dfcentre.com/research/calls-for-applications/>.

For login, you must choose the option 'Are you a previous user of Danida Fellowship Centre's electronic application system, click here', using your email address and password from your Phase 1 application (as only pre-qualified applicants can login to the Phase 2 e-application form). Select: "W2 Research in growth and transition countries phase 2" select 'Create application', and press 'Continue' until you reach Step 1 where you start entering data.

If you have forgotten your password from Phase 1 or use a wrong password, an e-mail will be sent to your e-mail address with your password, by entering the email address used in Phase 1 in the box. "Forgot your password".

Once you have created an application form, you can save and resume work at any time by accessing the "Edit" box on the login page to the right.

Your partners can access the application by using the e-mail address and password created by the applicant institution for login.

The Phase 2 application must comprise

- An e-application form
- Appendix A: Project Description
- Appendix B: CVs of all researchers and other project participants named in the application form Step 1A
- Appendix C: Budget
- Appendix D: Signatures

All appendices must be in English. Appendix A, B, and D must be submitted in PDF-format, while Appendix C must be submitted in Excel-format. The total size of all appendices must not exceed 25 MB. The appendix files must be named "Appendix [letter]".

The required format and content of individual appendices are described below. Other appendices/documents will not be considered.

Appendix A - Project Description: Must contain the headings as described in Section 4. The text format must be Verdana, 10-pt font size, with at least 2 cm left and right margins and at least 13-pt line spacing. The project description must be maximum 10 pages, exclusive of references which are in addition to the 10 pages.

Appendix B – CVs: The front page must include a table of contents listing the CVs in the order in which they appear in Step 1A in the e-application form. CVs should not exceed 2 pages per person.

CVs of researchers must specify the scientific qualifications, managerial skills, and experience from developing countries, and must include a list of key publications and patents. CVs of private sector partners must be accompanied by a profile of the company/private sector institution. The table of contents and all CVs must be compiled in a single PDF file in which each CV starts on a new page. Signature on CVs is not required.

Appendix C – Budget: The budget format must be used. Remember to include budget notes.

Appendix D – Signatures: This appendix must contain signatures of all participating researchers/partners and institutions in the project which are listed in Step 1A of the e-application. Use the two templates available on the DFC website - D1 Main Applicant and D2 Partners, respectively. Use one signature page per institution/company, which comprises the signatures of the Head of Institution/Department and named researchers/participants in Step 1A in the e-application form. Compile all signature pages in one PDF file before uploading the appendix.

10. Obligations

Applicants should familiarize themselves with the following before using the e-application system and submitting an application.

The responsibility of the applying institution

The applying institution is responsible for ensuring that all information in the e-application is correct, that the required appendices are uploaded with the e-application, that the contents of the appendices are correct, and that the e-application has been submitted before the set deadline.

It is not possible to make corrections to an e-application after it has been submitted, except for corrections related to basic applicant information such as change of e-mail address.

In the event of any subsequent substantive changes affecting the information submitted, the applying institution must immediately notify the Research Management Team at DFC at research@dfcentre.dk.

The application must reflect possible legal, regulatory or ethical issues and considerations, including required standards or authorization requirements (such as production standards, quality systems, scientific ethics, data handling and protection, use of animals), as well as research permits, provision of information to relevant authorities, etc., and a plan for obtaining these.

Storage of information and data protection

When the e-application system is used, the system will automatically register the applicant's identity, IP address, and the time at which the application was submitted. All personal data will be processed, stored and deleted in accordance with the [DFC Privacy Policy](#). We also refer to the [privacy policy of Innovation Fund Denmark](#) (in Danish) being the institution approving FFU's assessment of applications.

Technical disclaimer

The Danida Fellowship Centre is obliged to inform prospectively applicants of any system errors that make the e-application system unavailable, affecting the applicant's possibility of submitting e-applications within any deadlines. Information regarding such unavailability, and other unforeseen events, will be posted on the [DFC website](#).

The Danida Fellowship Centre accepts no liability for incorrect information due to software errors, calculation errors, transmission errors and similar errors, or for any claims for damages due to incorrect use of the e-application system.

Rejection of applications without substantive consideration

According to Section 6 of the Executive Order on the granting function etc. under Innovation Fund Denmark (Executive Order no 1150 of 25 October 2017), an application may be rejected by DFC without substantive consideration by the FFU and the MFA, if the formal requirements (to the eligibility of applicants and countries, and to the application and attachments) or deadlines, as set out in this Call for applications, are not met.

Other data which may be obtained by official bodies

The MFA and the FFU reserve the right to obtain information about any previous and current applications which an applicant may have submitted to the FFU, and this information may be included in processing of the e-application.

In the event that project funding has been or will be applied for from elsewhere, the MFA and the FFU reserve the right to obtain information as to whether such amount has been granted.

Use of funding for other purposes

The MFA may, at its discretion, decide that a proportion of the funding available is to be used for other research cooperation.

Announcement

Information about granted projects will be published by DFC: applicant name, title, workplace, title of application and granted amount. In addition, information on participating institutions, project summary, and summary of project progress/results will be published in the Danida Research Portal, <http://drp.dfcentre.com/>. Applicants should, therefore, only include information in these parts of their application (and reporting) which does not reveal information that they wish to keep out of the public domain.

11. Useful links

[Sustainable Development Goals](#)

[Strategic Sector Cooperation](#)

[The Consultative Research Committee \(FFU\) and National Screening Committees](#)

[Guide to making a good application by FFU](#)

[LogFrame terminology](#)

Appendix A: Country specific themes

Bangladesh

- **Occupational health and safety**

The economy of Bangladesh is growing fast and the ready-made garments sector is increasingly important. After major accidents in 2012 and 2013 that left hundreds of workers dead, the international community as well as international companies reacted strongly to ensure strengthened regulations for building construction and fire hazards. However, other aspects of occupational health and safety such as chemical hazards, accidents and manual load handling have not been paid similar attention. The objective of strategic sector cooperation (SSC) is to improve worker's occupational health and safety in Bangladesh through strengthening the Ministry of Labour and Employment (BMoLE) and the Department for Inspection of Factories and Establishments (DIFE). This will include capacity development for better inspection and through better information and awareness. Further research to address the improvement of occupational health and safety in broad terms would be appropriate.

Brazil

- **Intellectual property rights (IPRs)**

The overall focus of strategic sector cooperation (SSC) is to build the capacity of the Brazilian public administration within areas such as organisation, innovation, better regulation through quality management and control, as well as digitalisation through the introduction and adaptation of Danish best practices. A particular focus will be on intellectual property rights (IPRs), and will aim to enhance cooperation between the Danish Patent and Trademark Office (DKPTO) and its counterpart in Brazil, the National Institute of Industrial Property (INPI). The handling of an excessive number of patent and trademark cases is a problem that affects the Brazilian economy negatively. Enhancing the capacity of the Brazilian IPR infrastructure and making it easier for companies to protect and enforce their rights in Brazil is important as "knowledge intensive" companies consider this a relevant parameter when deciding where to invest. Further research into intellectual property rights would be beneficial.

- **Healthcare management and non-communicable diseases (NCDs)**

Brazil faces challenges in guaranteeing timely and good quality healthcare for all, not least due to a rapidly aging population and a major transition in terms of disease burden from predominantly infectious diseases to non-communicable diseases (NCDs). Strategic sector cooperation (SSC) aims to ensure better, faster and universal access to quality healthcare services and products by supporting the development of more efficient healthcare management, focusing e.g. on improving productivity in the health sector and on initiatives to achieve better patient security and quality treatment, efficient daily operations and optimal long-term design of the different health care activities. Non-exhaustive focus areas are improving healthcare through better use of data and improving healthcare by introducing efficient and transparent approval processes for pharmaceuticals, taking into account the overall licensing principles of quality, safety and security. Further research into these topics could be undertaken.

China

- **Food safety and sustainable agriculture**

Strategic sector cooperation (SSC) on this theme is divided into tracks:

- Dealing with food safety, entailing the establishment of a China-Denmark food safety control cooperation platform, to provide basic technical support for supervision and to assist the authorities in achieving safer production, improving the food safety levels and ensuring public health. Two themes dealing with food safety regulation and standards have been identified where the experience and lessons of one country can be used in the other: i) legislation and regulations on supervision; and, ii) food safety testing and the evaluation technology used in laboratories.
- Dealing with animal manure as fertiliser, in which the aim is to develop regulatory guidelines together with the Chinese authorities. Inspiration on how to set-up a regulatory system that aims to create more efficient and more environmentally friendly arable production will be the main deliverable. Two themes dealing with the practical aspects of manure handling and the regulatory aspects at administrative level have been identified, in which Danish experience and lessons learned can be modified to the Chinese context: i) handling, storage and application of manure; and, ii) regulatory guidelines for promoting the use of manure.

Further research to address the improvement of food safety systems as well as the efficient and sustainable use of waste from agricultural production would be highly relevant.

- **Sustainable urban development**

The city of Beijing is struggling with a wide range of urban challenges such as traffic congestion, air pollution, water scarcity, cloudbursts/heavy rains, flooding and life-style diseases such as diabetes. Encouraged by the immense public demand for a healthier environment, Beijing has reached out to the city of Copenhagen to help tackle sustainability issues. Strategic sector cooperation (SSC) focuses on three main themes: i) sustainable urban development (including infrastructure development, waste management and green energy); ii) climate change adaptation and water management; and, iii) diabetes. Through this cooperation it is intended to support specific urban development projects in Beijing, e.g. the development of the Qinglong Hutong or new Eco-city areas, as well as the improvement of the regulatory framework, plans and strategies for sustainable urban development. Thus, research into the dynamics of sustainable cities would also be valuable.

- **Water management and air pollution**

There are many serious water resource and environmental problems in China. Key challenges are the lack of enforcement of legislation and weak implementation of government strategies and policies at decentral level. Highest priorities are: i) water resource scarcity, groundwater and surface water management, including flood management; ii) law enforcement on air pollution from traffic and industry; and, iii) law enforcement and investment strategies regarding wastewater. The aim of strategic sector cooperation (SSC) is to enhance the capacity to address some of these challenges in a holistic and integrated way with input from Danish experiences and technological solutions. In this context there is a focus on knowledge building in the Chinese institutions responsible for development of guidelines and monitoring as well as enforcement of environmental standards as expressed in two national action plans: Water Ten and Air Ten. Further research into these topics would be appropriate.

- **Primary health care and approval and control of medicines**

Health services in China are characterised by lack of coordination across a complex healthcare system, lack of qualified staff, weak gatekeeping functions and poor referral and counter-referral systems contributing to ineffective access to public services, insufficient detection or delays in diagnostics, unmet needs and long waiting times. Citizens living in rural areas are affected the most by these challenges. The aim of strategic sector cooperation (SSC) is to enhance capacities of the authorities within policy and regulatory development for integrated health care. Two projects have been designed.

The first deals with regulations and policies in the field of medicines and medical devices. Five main topics of cooperation are envisaged: i) authorisation of medicines; ii) laboratory control of medicines; iii) medical devices; iv) inspections; and v) quality management. Research proposals would focus on comparative studies in drug development regulatory systems and clinical trial regulations including applied science with regard to upgrading existing policies, infrastructure and regulations.

The second concerns quality and capacity development in the primary health sector, dealing with the role of the primary health care in early detection and treatment as well as cooperation and coherence between specialized health services including hospitals and the primary health care facilities such as Community Health Service Centres. Furthermore there is a focus on: i) mental health with an emphasis on outpatient treatment of lighter, non-psychotic mental disorders such as depression, dementia and anxiety; and ii) Non-Communicable Diseases (NCDs) with an emphasis on chronic obstructive pulmonary disease, diabetes and skin diseases. Research proposals would focus on the development of the primary health care system within the area of NCDs and/or mental health.

Colombia

- **Veterinary and food safety**

The aim of the first phase of strategic sector cooperation (SSC) is to assist the Colombian authorities in improving the veterinary and food safety systems within pig value chains thereby contributing to safer production and products, a positive impact on public health, increased national pig production and access to the global market for pig meat. There is an emphasis on issues related to the regulatory framework and technical practices. In the second phase two new topics have been introduced: animal welfare and capacity building of small scale pig producers in post-conflict Colombia. Thus, research encompassing socio-economic dynamics and related to post-conflict areas would be relevant. Within the context of the SDGs, the gender dimension in improved production systems is also important.

Ghana

- **Maritime safety and environment**

The Gulf of Guinea is the key trade route and an important livelihood resource for both Ghana and West Africa. A major challenge is to ensure that the economic potential of the Gulf is realised in a sustainable and safe manner. The overall objective of strategic sector cooperation (SSC) is to build capacity and strengthen the framework conditions for the maritime sector in Ghana through government-to-government cooperation. The specific purposes are to enhance

the capabilities in key maritime institutions in Ghana and to promote a maritime regulatory and enforcement environment, which is in compliance with international standards. Thus, research themes could include maritime security and the commercial and economic impact of piracy, the sustainable use of the maritime domain (such as fisheries and the coastal environment) as well as the socio-economic impact of port expansion and other maritime infrastructure investments.

India

- **Smart city water management**

India is facing rapid urbanisation with an expected increase in the urban population of 400 million by 2040. The Government is tackling this challenge by upgrading a hundred cities through a smart cities programme, which includes water management. Strategic sector cooperation (SSC) entails working with the city authorities of Udaipur in the state of Rajasthan in efforts to improve urban water management by identifying efficient strategies and plans in an integrated and sustainable manner. Danish partners are Aarhus Municipality and the water utility Aarhus Vand A/S. The focus is on several sub-sectors including efficient and safe water supply, non-revenue water remediation, sustainable waste water management including sewage treatment and the remediation of lakes and rivers (in Udaipur). It is also intended to use the experiences and lessons from Udaipur to reach the national policy level. Research into smart cities water management would be appropriate.

- **Renewable energy**

Towards 2040 India is expected to account for 30 percent of the total global increase in energy demand. In accordance with the 2015 Paris Agreement (UNFCCC) on climate change, the Indian government has developed an ambitious nationally determined contribution (NDC) which includes: 40 percent of cumulative power installed capacity from non-fossil fuel based energy sources by 2030, and reduced emissions intensity of GDP by 33 to 35 percent by 2030 from 2005 level. The renewable energy capacity in India is around 71 GW but the government target for 2022 is 175 GW and for 2030, 500 GW. Strategic sector cooperation (SSC) aims at assisting with the rapid rolling out of renewable energy. The focus will be on the development of offshore wind (5 GW by 2022 and 30 GW by 2030) while simultaneously offering assistance to increase grid integration of renewable energy. In addition areas such as waste-to-energy, biomass energy, energy efficiency, on- and offshore wind R&D and testing, energy storage solutions, electric mobility and fuel cells are high priority topics where there is considerable scope for research.

Indonesia

- **Circular economy and solid waste management**

Indonesia is facing serious waste challenges especially in large and rapidly growing cities. City governments have to deal with increasing amounts of solid waste in inadequate waste management systems. Challenges include the lack of capacity among the many different responsible authorities to enforce the waste regulations, lack of awareness on waste reduction, recycling and the benefits of circular economy amongst the government the private sector and the general public. There is also a lack of separate financing mechanisms for waste management. Strategic sector cooperation (SSC) aims to improve municipal solid waste management and resource efficiency to address environmental, economic and health issues. Research is needed to: i) model the concept of circular economy with various Indonesian

stakeholders; and ii) address specific topics within solid waste management, such as the collection, separation and treatment of organic waste, replicating best Indonesian practices through national government regulation and improving the knowledge base by collecting more and better waste data at national level.

- **Renewable energy**

There are plans to increase power generation capacity in Indonesia by over 50-60 percent in the next five years, with a significant share from coal-fired facilities. An increased focus on renewables and on energy savings can contribute to the overall objective of reducing greenhouse gas emissions by 29 percent by 2030. Intensifying the use of expertise pertaining to renewable energy and energy efficiency is a key component of strategic sector cooperation (SSC). Within this framework, activities have been developed around energy modelling, planning and integration. Another topic is interconnection and developing smart grids to increase flexibility, robustness and energy security. Further research on energy modelling, the integration of renewable energy and energy markets could complement these efforts.

Iran

- **Intellectual Property Rights (IPRs)**

With the lifting of the economic sanctions in January 2016, Iran – with its 80 million inhabitants – is an interesting market for international investment. Enhancing the capacity of the Iranian intellectual property rights (IPRs) infrastructure and making it easier for companies to protect and enforce their rights in Iran will be important as “knowledge intensive” companies consider this a relevant parameter when deciding where they put their investments. Strategic sector cooperation (SSC) between Denmark and Iran addresses constraints in relation to the protection and enforcement of IPRs, focusing on institution building, legal alignment, capacity building and awareness raising. The overall objective is to enhance the capacity of the Iranian institutions to protect and enforce IPRs. Further research in this field would be beneficial.

Kenya

- **Green growth and the circular economy in the manufacturing sector**

Strategic sector cooperation (SSC) aims to support and strengthen opportunities for Kenya to pursue green growth in its manufacturing sector. The focus is on operational perspectives for enforcement and compliance, spatial planning, policy development and systemic change, with the underlying assumption that a strong public-private dialogue and collaboration is a positive lever for change. The overall technical focus is green and circular manufacturing in existing and new industries. This includes developing resource efficient and cleaner production processes, product design, solid waste management practices, wastewater management and industrial symbiosis. An established public private partnership comprising research institutions, public authorities and 35 diverse manufacturing companies located in a mixed industrial area with human settlements is the key practical basis for the SSC. Further research into the circular economy in manufacturing would be appropriate.

- **Veterinary and food safety**

The objective of strategic sector cooperation (SSC) is to improve the food safety, food quality and ability to further process healthy food originating from the horticulture and dairy sectors with emphasis on the control of residues and certain contaminants for the benefit of the Kenyan

population and for increased export. This entails introducing a more risk-based and preventive approach to food safety aligned with a value chain focus. Food safety issues are addressed in three ways: i) regulatory and operational capacity building in food and feed safety authorities; ii) the development of the food and feed safety control system with an emphasis on value added in the dairy sector; and, iii) development of the food safety control system with an emphasis on value added in the fresh fruit and vegetable produce sectors. Further research on these topics would be beneficial.

Mexico

- **Primary healthcare and non-communicable diseases**

Several major development challenges are currently threatening Mexico's healthcare system, including inter alia: i) a shift in disease burden from infectious diseases to non-communicable diseases (NCDs) and mental illnesses; ii) inequality in access to quality health services deriving from a fragmented healthcare system characterised by multiple providers; and iii) incoherence in primary healthcare. Strategic sector cooperation (SSC) aims at strengthening the primary healthcare system in Mexico in the light of the shared challenges in Denmark and Mexico resulting from a growing burden of NCDs and mental illnesses. Three complementary result areas are included: communication and referral mechanisms; IT-systems and digital communication; and efficient use of data equipment and telemedicine. Further research on these topics would be beneficial.

- **Veterinary and food safety**

The Mexican government aims to strengthen the pig production value chain with the purpose of achieving greater food safety and job creation, and to increase the supply of pig meat for both the home market and for exports. Mexican pig production is characterized by insufficient use and sharing of production and veterinary data, thus hampering the development of an efficient and safe production. In addition, there is potential for better documentation of the processes within the value chain, in order to facilitate the development of relevant programmes and policies based on information "from farm to fork" (i.e. traceability). In this context the focus of strategic sector cooperation (SSC) with Mexico is to improve productivity and food safety within the value chain for pork production. By strengthening the use of data in the value chain and identifying the relevant data to be produced, collected, managed and used, as well as the dataflow in the farm to fork perspective, the objective is to support the development of a more knowledge-based production and facilitate increased intra-sector cooperation within the value chain. Further investigation of the value chain would be beneficial.

Myanmar

- **Occupational health and safety and labour market reform**

In 2011 the government of Myanmar initiated a comprehensive reform process aimed at achieving a more democratic, market-based and socially equal society with prosperity for all. Since 2014, labour market reform has been given priority with the explicit aim of promoting sustainable growth and development. At this point in the reform process, however, there is a need to better understand how the strengthening of labour market institutions can contribute to promoting sustained and inclusive economic growth, full and productive employment and decent work for all, including what are currently the barriers and potential drivers for realizing

this potential. A particular focus in occupational health and safety research should be given to small and medium-sized enterprises.

South Africa

- **Sustainable SMART urban development**

Skewed and segregated socio-spatial planning during the Apartheid era has resulted in “disintegrated” and fragmented South African cities. As a result the City of Tshwane (Pretoria) is experiencing rapid population growth, urban sprawl and inner city dilapidation. This puts an immense pressure on the administration to transform the social and urban landscape and deliver services, housing, infrastructure, safety and employment opportunities. Strategic sector cooperation (SSC) aims to address these challenges and is expected to strengthen capacities to develop sustainable SMART solutions for urban planning. The collaboration draws on City of Aarhus’s best practice planning tools, experiences with innovative project organisation as well as world class technical solutions. Private sector developers and knowledge institutions in both countries are an integrated part of the collaboration with regard to technical solutions, knowledge transfer and capacity building. The focus of the SSC is on: a) green and non-motorised transport; b) water; c) public spaces; d) mixed-use developments; and e) housing. Research into the dynamics of sustainable cities would be a valuable complement to these efforts.

Turkey

- **Energy: renewables and district heating and cooling**

Strategic sector cooperation (SSC) with Turkey encompasses two related themes. Firstly, there is a focus on efficient, low-carbon heating and cooling systems. Roughly one third of the energy consumed in Turkey is today used for heating and cooling purposes. The authorities are aiming to promote the use of energy efficient and low carbon heating and cooling systems. Currently heat is mostly provided in individual or building-level heating systems and most systems are powered with fossil fuels. Relatively few district energy systems are found. Combining heat and power and utilising surplus heat in industry are likely to have a significant unused potential. Looking at the most suitable renewable energy sources for district heating and cooling, geothermal, solar, wind, biomass and waste-to-energy have to be considered in Turkey. Thus, research is needed to explore opportunities for developing energy efficient and low carbon solutions within heating and cooling.

Secondly, there is a focus on both offshore and onshore wind as renewable energy sources. Onshore wind has undergone rapid development during recent years. Since 2017 8.2 GW of new capacity was added in the power sector – 65 percent of this was renewable energy. Based on cooperation with respect to heating and cooling, the national energy authorities have specifically requested support for the expansion of the offshore wind sector and the preparation of an offshore roadmap. With sea on three sides of the country there is likely to be a significant wind potential to harvest. In addition to offshore it is likely that onshore wind also will be included in the SSC. Research could be designed to examine ways of using wind energy in Turkey’s electricity grid and the overall energy mix, balancing green wind electricity on the grid, looking into energy storage and using wind energy in heating and cooling networks.

Vietnam

- **Veterinary and food safety**

Strategic sector cooperation (SSC) includes a focus on food safety in the pig value chain. A key concern is the routine use of antibiotics and other compounds to manage diseases in order to achieve productivity and biosecurity outcomes. Solutions to better manage this and reduce the amount of antibiotics used could include hygiene, biosecurity and disease surveillance measures as well as the prevention of diseases through vaccination. Research is needed to help establish how such measures - along with prudent use practices consistent with a "one health" approach - may be implemented. This would include determining the actual disease risk and status, current livestock farming and antibiotics usage practices, as well as the prevalence and risk of antimicrobial resistance with a view to making recommendations on pathways to improved disease prevention and control practices. It is recommended that the research be interdisciplinary, include an analysis of the role of relevant stakeholders in achieving behavioural change and focus on developing innovative solutions that will work in the Vietnamese context.

- **Health care and non-communicable diseases (NCDs)**

The prevention and treatment of non-communicable diseases (NCDs) in primary healthcare is in focus through strategic sector cooperation (SSC). In Vietnam, as in many low and middle-income countries, the existing healthcare system is oriented towards infectious diseases. As a result, the system is poorly equipped to handle the growing prevalence of NCDs. There are direct consequences for especially for the poor, who are affected by the diseases and by lack of access to prevention and long-term care. A reorientation of the healthcare system with investment in the prevention and treatment of NCDs at the primary level and with new attention to patient self-care and involvement is underway. An essential prerequisite for success in this field is knowledge on how NCDs are experienced and handled by patients, relatives and healthcare professionals. Further research would be beneficial.

- **Technical and Vocational Education and Training (TVET)**

Literacy among Vietnam's adult workforce is widespread and more so than in other countries, including wealthier ones. However, inadequate skills of job applicants (a "skills gap") and scarcity of workers in other occupations (a "skills shortage") are both identified as major challenges in the next step of industrialisation. The focus of strategic sector cooperation (SSC) has been on vocational education and training, supporting an enhanced coherence between the Vietnamese TVET system and the labour market addressing skill-gaps and future skills needs. Relevant line ministries and their regional branches are supported to develop tools and mechanisms to implement the parts of the strategy focusing on enhanced cooperation between schools, companies and authorities. Research is needed to assess strategic as well as concrete interests and opportunities for companies and educational institutions to engage in and influence these gaps and shortages in view of the rapid socio-economic and structural development, ongoing privatization and significant international integration of the economy.