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Research Application Summary

## **The University of Burundi Doctoral School: The Model and the current status**

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### **Abstract**

Since the advent of the knowledge economy society, it is generally agreed that research plays a major role in creating new knowledge and achieving the development goals. This article starts with the description of the processes of establishment of the University of Burundi doctoral school. It then designs the operating model for this school based on an in-depth analysis of strengths, weaknesses, opportunities and threats (SWOT) of research in Burundi. The opportunities used in this article come from the implementation of the East African Community Common Higher Education Area, the knowledge economy society and the Sustainable Development Goals. Finally, the article highlights the structures of the doctoral school, students' admission and registration procedures and the organization of doctoral studies.

Key words: University of Burundi, Doctoral School, Common Higher Education Area, knowledge economy society, Sustainable Development Goals

### **Résumé**

Depuis l'avènement de la société de l'économie du savoir, il est généralement admis que la recherche joue un rôle majeur dans la création de nouvelles connaissances et la réalisation des objectifs de développement. Cet article commence par la description des processus de création de l'école doctorale de l'Université du Burundi. Il définit ensuite le modèle de fonctionnement de cette école sur la base d'une analyse approfondie des forces, des faiblesses, des opportunités et des menaces (FFOM) de la recherche au Burundi. Les opportunités utilisées dans cet article proviennent de la mise en œuvre de l'Espace commun d'enseignement supérieur de la Communauté d'Afrique de l'Est; la société de l'économie de la connaissance et les objectifs de développement durable. Enfin, l'article présente brièvement les structures de l'école doctorale, les procédures d'admission et d'inscription des étudiants et l'organisation des études doctorales.

Mots clés: Université du Burundi, Ecole doctorale, Espace commun d'enseignement supérieur, Société de l'économie du savoir, Objectifs du développement durable

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## Introduction

Since the launch in 1999 of the Bologna process of building a European Higher Education Area and the adoption of the “Bachelor-Master-Doctorate” (BMD) reform mainly based on the harmonization of curricula and quality assurance mechanisms, several countries have committed themselves to implementing this reform. In Burundi the BMD reform was adopted in 2011 following a long period of preparatory work which included evaluation of selected aspects of the operations of the University in Burundi’s programmes, development of concept notes and reports required in order to document the processes of adoption and implementation of the reform. The modalities for the establishment of the doctoral school were adopted in 2015 and the accreditation of the school and its programs took place in February 2017. This article describes the processes used for setting up the doctoral school and reviews the progress made to date in terms of admitting PhD students and launching courses and research activities. It then reviews the challenges facing the school and the opportunities available. Finally, the article defines the operating model for the school and briefly highlights the structures of the school, the students’ admission and registration procedures and the organization of the studies.

**The processes of establishment of the University of Burundi Doctoral School.** The concept of a doctoral school emerged from the implementation of the “Bachelor-Master-Doctorate” (BMD) reform which was one of the objectives of the Bologna process launched in 1999 in order to build a European Higher Education Area by 2010. In Burundi, the BMD reform was adopted in 2011 through the Law No. 1/22 of 30 December 2011 on the Reorganization of Higher Education in Burundi. The procedures for implementing the doctoral school component of this reform were adopted in 2015 through the Decree N 100/06 of 12 January 2015 on the establishment and organization of doctoral schools in Burundi.

The process of setting up the doctoral school benefited from three major initiatives: (i) the project on strengthening higher education in Burundi (Projet d’appui au renforcement de l’enseignement supérieur au Burundi-PARES) funded by the French Government, (ii) the University of Burundi institutional support funded by the Research and Higher Education Academy of Belgium (Académie de recherche et d’enseignement supérieur – ARES- de la Belgique) and the Flanders (Belgium) university cooperation (VLIR-UOS). The PARES was implemented during the period 2007 to 2012 to support activities related to the implementation of the BMD reform and revitalization of higher education sector in Burundi (<https://bi.ambafrance.org/Projet-PARES828>). The project provided technical and financial support to the University of Burundi in order to undertake the studies needed to document the process of adoption and implementation of the BMD reform.

During the period 2014 to 2017, ARES contributed to the development of several legal and regulatory documents related to the operations of the doctoral school. It also organized

several meetings in Belgium for the planning of activities of the school and supported the preparation and launch of the call for admission of candidates to the doctoral school, and the identification of researchers from European universities who would co-supervise doctoral students. VLIR -UOS contributed to the process of establishment of the doctoral school mainly through capacity building workshops organized in 2016-2017 as part of its project that supports teaching and research at the Faculty of Sciences of the University of Burundi. Both ARES VLIR have pledged to support mobility of some doctoral students to Belgian universities in 2018 and 2019 and the cost of some Belgian visiting Professors and/or researchers to the University of Burundi.

The application for accreditation of the doctoral school and its programmes submitted by the University of Burundi to the National Commission for Higher Education was approved in February 2017. The University of Burundi doctoral school was launched on July 20, 2017 by the Second Vice President of the Republic of Burundi, at the opening ceremony of the international conference on “The Role of Research and Development in African Universities in Achieving Sustainable Development Goals” organized by the University of Burundi.

The doctoral school is located on a campus of 72.10 acres in the Gihosha area in Bujumbura. The campus has 24 offices, 2 classrooms and 1 computer room with a capacity of 50 seats. Currently, the computer room contains 30 brand new computers. The school also has access to some technological platforms, including the GoToMeeting teleconferencing platform that will facilitate online contacts between students and their co-supervisors.

**The context underlying the choice of doctoral school model.** Many universities taken individually do not have the resources required to conduct quality doctoral training in all the areas of scholarship. Therefore, in establishing a doctoral school, each university should undertake a thorough strengths, weaknesses, opportunities and threats (SWOT) analysis to determine the doctoral school model that would enable it to address effectively specific challenges that it faces.

**The challenges facing the establishment of a doctoral school in Burundi.** Major challenges facing the Burundi Doctoral School include the inadequacy of qualified academic staff and researchers required to supervise PhD students, insufficient and inadequate research laboratories and lack of up-to-date scientific journals. Further, the Burundi research base is low. Out of 127 countries, Burundi ranks 122nd in the Global Innovation Index 2017 report entitled “Innovation Feeding the World” which surveys economies using metrics ranging from patent filings to education spending and provides policy-makers with a high-level take on innovative activity that drives economic and social growth.

Burundi was ranked 117 for tertiary education enrolment, 114 for human capital and

research, 124 for knowledge and technology outputs, 104 for university-industry research collaboration, 99 for gross expenditure on research and development, and 100 for graduates in science and engineering (Dutta *et al.*, 2017; UB, 2017a).

**Opportunities.** It is generally agreed that for Burundi, in addition to the specific challenges, the SWOT analysis should take into account the following regional and global opportunities:

*The establishment of the East African Community (EAC) Common Higher Education Area.* The launch of the EAC Common Higher Education Area by the Heads of the Partner States Summit held on May 20, 2017 in Dar es Salaam, Tanzania will greatly facilitate the processes of transfer and accumulation of credits between higher education institutions and therefore promote Student mobility which is one of the strategies to be used by the University of Burundi Doctoral School for the implementation of its programmes. It is anticipated that the operationalization of this common space will contribute to increasing the intra-regional collaboration in the EAC Partner States. The University of Burundi is planning to significantly increase its collaboration in research with the EAC universities.

*The Knowledge Economy Society.* Since the advent of the knowledge-based economy, characterized mainly by the rapid expansion of Information and Communication Technologies and research in science, technology and innovation and their increased use in the sustainable development processes, it is recognized that universities play a major role in building the capacity required in order to ensure the effectiveness of these processes.. The contribution of universities should focus on the training of high-level human resources in priority areas of development and the creation of new knowledge required for development through research and innovation.

According to the World Bank and Elsevier (2014), in 2012, 79%, 70% and 45% of all research by Southern, East Africa and West and Central Africa, respectively, were produced through international collaboration. On the basis of this observation, the University of Burundi has decided to organize the supervision of PhD theses through regional and international collaborations, in particular by assigning to each PhD student at least two supervisors, one from the University of Burundi and the other one from a partner university from the North or South.

*Implementation of the Sustainable Development Goals (SDGs).* African universities are aware of the role that they should play in achieving the SDGs, especially given that their research programmes cover most of these goals. According to a Statement made by Dr Jeffrey D Sachs, a world-renowned Economist, who is the Director of the Earth Institute at Columbia University in the United States and Senior United Nations advisor, at the World Sustainability Forum held in January 2017 in Cape Town, South Africa, “achieving the SDGs would be impossible without the leadership role of the university sector. I do think the academic and university sector have a unique role to play. I do not believe the SDGs can

be achieved without the university sector.” The participants in this Forum also recognized that “Africa’s ability to meet the SDGs is closely tied up with its research capacity”, which confirms the central role of universities R&D in the implementation of the SDGs. The University of Burundi Doctoral School will play a leading role in the implementation of the SDGs at national level

**The University of Burundi doctoral school model.** The above SWOT analysis justifies the doctoral school model proposed by the University of Burundi. The model is based on a system involving at least two co-supervision of theses, one from the University of Burundi and the other one selected from experts and researchers from universities in the North and South. The system also relies on increased student mobility to partner universities to enable them to meet with co-supervisors and to use world-class research laboratories in partner universities. In this regard, the University of Burundi has already signed more than 20 partnership agreements with African and European universities.

In addition to the work of the co-supervisors, PhD students will benefit from the contribution of other international experts who will be involved in the PhD students’ research activities through physical mobility programmes to Burundi and participation in virtual workshops, through the use of Information and communication technologies such as the GoToMeeting teleconferencing platform. PhD students will also have full access to the University of Burundi virtual Library that will be officially launched before the end of December 2017.

According to the Decree N 100/06 of 12 January 2015 on the establishment and organization of doctoral schools in Burundi, the PhD student is required to make at least two publications in an international peer reviewed journal. To facilitate this requirement, the University of Burundi is negotiating a partnership with Natural Sciences Publishing (<http://www.naturalspublishing.com/>) to train PhD students on the writing of scientific articles. This Publishing house, which publishes 27 journals, would also be involved in coaching students to prepare articles corresponding to the profile required by these journals. The PhD students will also be empowered to enable them to publish their research work in open access publishing platform such as the African Academy of Sciences Open Research launched during the week of November 13, 2017 (AAS, 2017).

**The structures of the doctoral school.** As part of the preparation for accreditation of the doctoral school and its programmes the University of Burundi established the following structures in 2016 and 2017 namely, a) The Directorate of the doctoral school; b) - The Pedagogic and Scientific Council of the doctoral school; and c) New or restructured research centres and laboratories.

The Director of the doctoral school is responsible for the implementation of the school’s strategic plan and work plans and the management of the financial and material resources of the school, in accordance with the administrative and financial regulations of the University

of Burundi. Likewise, the pedagogical and scientific council has the following missions: approves the work plan of the doctoral school; approves applications for admission to the doctoral school; coordinate research units and teams; appoints members of the students' support committees; improves the supervision conditions of doctoral students; and contributes to improving the employability of doctoral graduates. The membership of the Pedagogic and Scientific Council is made up of the following fellows: representatives of research centres that participate in the supervision of PhD students; a representative of the doctoral students nominated by their colleagues; and two personalities from outside the University of Burundi chosen for their skills and expertise in the scientific, technological and socio-economic fields. Currently these positions are held by the representatives of the Research and Higher Education Academy of Belgium (ARES) and the Flanders University cooperation of Belgium (VLIR-UOS), respectively.

**Students' admission and registration procedures.** Students' admission is done according to a selection procedure based on criteria approved by the Minister responsible for Higher Education. The procedure is overseen by the Pedagogic and Scientific Council. The main documents required in the application file include the following: a letter of application for admission; a legal copy of a Research Master's degree or a degree considered equivalent to a research master degree; an updated CV; a doctoral thesis project developed by the doctoral student and approved by the thesis co-supervisors; letters from co-supervisors accepting to support the student in process of preparation of the thesis; a letter from the head of the Research Unit accepting to host the student and to provide adequate research conditions; a proof of the financial capacity to support the doctoral studies; a thesis charter signed by the candidate requesting admission, the thesis co-supervisors, the Head of the research unit and the Director of the doctoral school.

Admission to the Doctoral School is decided by the Pedagogical and Scientific Council and notified to the candidate by the Director of the Doctoral School. The candidate admitted to the doctoral school will have to take an annual registration at the University of Burundi against payment of the tuition and other fees. The process of admission to the doctoral school was launched on September 11, 2017 through an online form. As of November 20, 2017, 383 candidates have already opened Internet accounts to register. Of these candidates, 25 or 7% have already completed the entire registration process; 60 or 16% completed the registration process at 80% and 92 or 25% completed the process at 60%. Most candidates are from Burundi and the Democratic Republic of the Congo. The Pedagogic and Scientific Council will shortly evaluate the applications of the 25 candidates who have completed the registration process and selected candidates will be allowed to register to the school before December 15, 2017.

**Organization of doctoral studies.** The doctoral training includes four compulsory steps - (a) admission, (b) confirmation for the student to renew his/her registration, (c) private presentation of the thesis and (d) public presentation of the thesis. Within 12 months of the

date of admission to the doctoral school, the student must obtain an authorization allowing him/her to pursue his/her doctoral studies. For this purpose, s/he must prepare a progress report on his/ her research and make a presentation to the support committee that will take a decision about whether to let him/her continue his/her studies. The duration of doctoral studies is three years. This duration runs from the date of registration to the Doctoral School and ends on the date of successful presentation of the thesis. This period may be extended on the basis of a duly motivated request made by the student and endorsed by the thesis supervisors and the Pedagogic and Scientific Council.

The preparation of a doctoral thesis is done within a research center, a laboratory or a research team under the responsibility of a thesis supervisor. In order to comply with this requirement, the Board of Directors of the University of Burundi made a decision in 2016 to restructure scientific research at the University of Burundi. This decision led to the creation of 10 research centers and 15 research laboratories. These Centres are (UB, 2017b):

*In the area of Natural Sciences, Life Sciences and Engineering:* Centre on Infrastructures, Environment and Technologies; Centre-on Natural Sciences and Environment; Centre on Health; Centre on Food Science and Technology; Centre on Didactics and Dissemination of Science; Centre on Mathematics and Physics; and Centre on Science of Animal, Plant and Environmental Production.

*In the area of Education, Social Sciences and Humanities:* Centre on Economic and Social Development; Centre on Studies on the Development of Societies in Reconstruction; and Centre on Studies on African Societies.

The academic staff or researchers qualified to supervise a doctoral thesis must have the rank of Associate or full Professor. In addition to the thesis co-supervisors, researchers belonging to research centers and laboratories at the University of Burundi and in partner universities will be encouraged to participate in the supervision of doctoral students both in Burundi and abroad during their mobility. In exceptional circumstances, particularly related to the scientific reputation of an academic staff or a researcher from the University of Burundi, the Pedagogical and Scientific Council may authorize a staff member who has not yet reached the rank of Associate Professor to co-supervise a doctoral thesis.

Each doctoral student will also have a support committee made up of at least four members, including the two co-supervisors of the thesis. The committee is chaired by a member other than the two co-supervisors of the thesis. They are appointed by the Pedagogic and Scientific Council to guide, monitor and provide additional advises to the doctoral student in order to help him to progress according to the approved work plan.

The preparation of a doctoral thesis includes the following activities: courses, seminars, workshops, conferences; missions and internships; individual research and publications; and writing and presentation of the thesis. The doctoral degree is awarded following

successful validation of 180 credits spread over six semesters and distributed as follows: courses, seminars, workshops and internships: 20 credits; research work including presentations at conferences and publications on doctoral research: 40 credits; writing and successful presentation of the thesis: 120 credits.

### **Concluding remarks**

This article has described the process of creating the University of Burundi's doctoral school officially launched by the Second Vice-President of the Republic of Burundi in July 2017, demonstrating strong political support. The model for this school was designed on the basis of a thorough SWOT analysis. The school's programmes will be implemented on the basis of regional and global collaborations, PhD students' mobility and increased use of ICTs. The first group of students from Burundi and the Democratic Republic of Congo will be admitted by mid-December 2017 and several partners have already committed to support the programs of the doctoral school.

### **Acknowledgement**

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