PRE-SELECTION AND SHORTLISTING OF PhD APPLICANTS FOR THE SUB-PROGRAM "INTEGRATED AGRICULTURE PRODUCTIONS SYSTEMS",

REPORT

Pre-selection date: **10 Nov 2021**
Venue: **UR-Headquater & Online**

-1. SANDWICH PhD RESEARCH TRAINING on "Integration of urban organic waste stream into integrated agriculture systems"

Background

The University of Rwanda - The College of Agriculture, Animal Sciences, and Veterinary Medicine (CAVM- UR) - in collaboration with the Swedish University of Agricultural Sciences (SLU), Sweden through the Research Training Partnership Programme, Rwanda (2019/24) has received funding from the Swedish International Development Agency (SIDA), Sweden, to implement a research and training programme entitled: **Integrated Agriculture Productions (IAP).** The programme integrates three broad thematic areas: 1/ Integrated farming systems, 2/ Climate smart agriculture production systems; and 3/ Healthy and nutritious agriculture production systems. The major outputs will be 7 PhD holders (2 sandwich PhDs at SLU and 5 local PhDs at UR-CAVM. The major outcomes will be the promotion of quality, multidisciplinary and impactful research; further development of supervising skills for CA VM staff; an enhanced culture of publication and scientific exchange; collaboration with farmers, the private and public sectors and policymakers; and administrative/academic structures and systems supporting innovation and promoting a vibrant research environment.

The University of Rwanda is inviting committed potential candidates to apply for one Sandwich based PhD positions in Integrated Agriculture Productions starting February 2021. The PhD student will be registered at SLU, Sweden but field research will take place in Rwanda.

According to the Sandwich PhD training model, student is expected to spend a maximum of 6 months per year in Sweden and carrying her/his research activities at UR, Rwanda for the remaining period of the year. The student will be jointly supervised by professors and senior researchers from both SLU and UR.

Research area: Solid waste management in many low-income countries often have a great proportion of recycling of valuable fractions, e.g. metal, hard plastics. However, the organic waste is not considered to be valuable and therefore often end up at landfills. In a study performed in

Uganda, over 90% of the waste taken to landfills was demonstrated to be biodegradable (Komakech et al. 2014). At the same time there is a lack protein to be used for fish feed and plant nutrients to fertilise the fields. Treating the organic waste, including agricultural waste, with invertebrates have the potential of solving these two problems.

In the invertebrate assisted waste management, using either earthworms or fly larvae, highly valuable products are generated: treatment residue that can be used as fertiliser and animal biomass that can be used as animal feed (Lalander et al. 2015a; b). Generating high-value products introduce a shift in the organic waste value-chain and the increased revenue permit a reduced total cost of treatment.

2) Evaluation the efficiency of process parameters and schemes for improved recovery of plant nutrients and proteins in the biodegradable urban and agricultural waste.
3) Evaluation of risk in terms of disease transmission within the recovery system.
4) Evaluate product quality of the generated products as feed and fertiliser.

Expected results:

I) Identification of potential waste streams;
2) Proposed treatment systems for productive waste management for local production of sustainable feed and fertilisers;
3) Evaluation of the potential hygienic and environmental risks associated to the proposed invertebrate assisted waste management strategy.

Members of the shortlisting committee
- Guillaume Nyagatare (UR supervisor)
- Björn Vinnerås (Swedish supervisor)
- Cecilia Lalander (Swedish supervisor)
- Simon Rukera-Tabaro (Team Leader UR)
- Abraham Joel (Team Leader SLU)

Meeting agenda
Zoom meeting concluding discussion and agreement for short-listing the three applicants on November 9th. The applications were shared to all members of the shortlisting committee in advance.

Summary on applications received
Three applicants: - Theoneste Rutayisire,
       - Rose Niyonkuru, and
       - Janvier Habinshuti

Screening of candidates meeting general eligibility criteria
The three received candidates were retained for interview

Table of evaluation
See table of evaluation on next page

Candidate	Family name	First name	e-mail	Meets the general eligibility criteria (yes/no) [1]	Application complete (yes/no) [1]	Specific essential criteria [2]			Specific desirable criteria [2]				Ranking	Assessment (short comments)
						Education (level and topic): E.g. Master of Science degree in energy technology, chemical engineering, or equivalent qualifications	Language skílls: E.g. Very good knowledge of the English language, both in speech and in writing	Other essential qualifications: Any that are absolutely needed for the specific PhD postition (not related to the general eligibility)	Degree, or by complementary education, has a specialization in: E.g. biomass-based thermochemical energy conversion processes and combustion technology	Publications (other than master thesis etc): E.g. peer-review scientific papers, technical reports, conference proceesings, …	Relevant work experience: E.g. experience from experimental research, or similar technical, workwith small-scale biomass combustion applications	Specific skills (technical, methods, programs,tools, etc):E.g. Experience of working with analytical methods such as SEM-EDS and XRD		
1	NIYONKURU	Rose	Niyonkururose1@yahoo.fr	Yes	Yes	Master of Science degree in Soil & Water Engineering	Good	Not applicable	Not applicable (not requested in the call)	Not required in the call	Some teaching 6yrs, Coordination, (1 yrs)	Not required in the call	GREEN	Proposal not fully focusing on what the call required, but she is able to do improve
2	RUTAYISIRE	Theoneste	rutayisimbi@gmail.com	Yes	Yes	Master of Science degree in Soil & Water Engineering	Good	Not applicable	Not applicable (not requested in the call)	Not required in the call		Not required in the call	GREEN	The concept note focuses well on the theme, and the background is in the same line
3	HABINSHUTI	Janvier		Yes	Yes	Master of Molecular Biology	Good	Not applicable	Not applicable (not requested in the call)	Not required in the call		Not required in the call	YELLOW	The project not well aligned with the theme in the call, and the background differ from engineering. However the research is receivable and susceptible for improvement

[1] Defined in the UR Policy document

[2] As by the text in the call for applications

Meets the criterion very well

Meets the criterion partly, uncertainDoes not meet the criterion at all

Outcome of the shortlisting

The members of the committee analysed files of 3 candidates which background were fitting with the call (T. Rutayisire, and R. Niyonshuti) and presented a more or less well aligned research proposal, even though was more of environmental monitoring rather than engineering. The third candidate (J. Habinshuti) is from molecular biology background but with an acceptable research proposal as it is susceptible for improvement. The committee decided however to invite all the three candidates for interview.

-2. PhD in AGRICULTURAL SCIENCES, Specialisation in CROP SCIENCE & HORTICULTURE

Research theme: Assessment and improvement of the current crop intensification programme with regards to its environmental impact, effectiveness in pest, weeds, and nutrients management (Integrated Agriculture)

Background

The University of Rwanda, College of Agriculture, Animal Sciences and Veterinary Medicine (CAVM) in collaboration with the Swedish University of Agricultural Sciences (SLU), Sweden through the Research Training Partnership Programme, Rwanda (2019/24) has received funding from the Swedish International Development Agency (SIDA), Sweden, to implement the research and training programmes **Toward Integrated and Sustainable Agriculture Production Systems (IA).**

The Overall objective of the project is to promote sustainable, nutritious and healthy agriculture productions systems and food and nutrition security. IA integrates three broad thematic areas: 1/ Integrated farming systems, 2/ Climate smart agriculture production systems; and 3/ Healthy and nutritious agriculture production systems. Equally important, agriculture production has to be achieved in an equitable and environment friendly fashion that promotes adaptation and resilience to climate change, engages and empowers women and youth, and identifies and reduces losses, wastages, inequalities, and inefficiencies in the production, transformation and commercialisation of agriculture inputs and products. In the long-term, this capacity building project will contribute to making Rwandan agriculture a sector that supplies rural and urban populations of Rwanda with healthy, abundant, diverse, affordable food, and in return will lift farmers and rural populations out of poverty and enable them to actively participate in the creation of, and benefit from, global prosperity.

Focus area: Assessment and improvement of the current crop intensification programme with regards to its environmental impact, effectiveness in pest, weeds, and nutrients management (Integrated Agriculture)

- UR-Sweden programme: Integrated Agriculture subprogramme
- Available Positions: 1 Position
- Specific eligible criteria: Master in Crop Sciences, Agronomy, Soil Sciences, or equivalent

Agricultural production is currently being intensified at an unprecedented rate in Rwanda, largely by means of conventional methods such as increased use of mineral fertilizers, chemical pesticides and simplified crop rotations. Even if this approach in the short term is likely to lead to increased crop yields of certain key crops such as maize and potatoes, it will also increase the pressure on the environment and human health, and may erode biodiversity, ecosystem services and ultimately the resilience of agricultural production (Sala et al. 2000; Steffen et al. 2018)). Ecological intensification, which aims at reducing the need for external inputs by careful management of ecosystem services provides an alternative intensification path that may lead to more resilient agricultural production and reduced environmental impact (Bommarco et al 2013). The proposed project will assess if selected ecological intensification approaches can make maize cropping systems more sustainable in Rwanda.

In the first stage of this project, maize grown under the current intensification programme will be compared with more integrated, traditional production systems with respect to the pressure of pests and weeds, soil fertility and yield of maize. Furthermore, sustainability of these cropping systems will be compared using several indicators of i) environmental impact (e.g., water pollution, pesticide residues) and ii) resilience of the (selected) ecosystem service of pest control (e.g., functional diversity of pest predators, and the time it takes for pest control services to bounce back after disturbance (Martin et al. 2018). Finally, we will compare the nutritional status of families in the different management systems.

In the second step of the project, selected approaches to ecological intensification (e.g. mixed cropping, conservation tillage or soil amendments), will be identified based on the results of the initial survey, literature and ongoing projects (e.g., the capacity building programme in Uganda), and integrated into the intensified cropping systems. The modified cropping systems will then be compared to conventionally intensified systems with respect to pest and weed pressure, soil fertility, crop yield as well as indicators of resilience and environmental impact. The proposed project is expected to provide i) an assessment of the productivity and sustainability of conventionally intensified maize cropping systems and more traditional, integrated cropping systems of Rwanda; ii) an evaluation of whether selected ecological intensification approaches can enhance productivity and sustainability of maize cropping in Rwanda.

Members of the shortlisting committee

- Francois Naramabuye (Supervisor UR)
- Mattias Johnsson (Supervisor SLU)
- Simon Rukera (D-Team Leader UR)
- Guillaume Nyagatare (Team leader UR)
- Abraham Joel (Team Leader SLU)

Meeting agenda

Zoom meeting concluding discussion and agreement for short-listing the three applicants on November 9th. The application was shared to all members of the shortlisting committee in advance.

Summary on applications received
One applicant: Chantal Uwituze

Screening of candidates meeting general eligibility criteria
The candidate met eligible criteria

Table of evaluation
See next page. Colour coding shows the decision taken for the candidates' application

Candidate	Family name	First name	e-mail	Meets the general eligibility criteria (yes/no)[1]	Application complete (yes/no)	Specific essential criteria [2]			Specific desirable criteria [2]				Ranking	Assessment (short comments)
						Education (level and topic): E.g. Master of Science degree in energy technology, chemical engineering, or equivalent qualifications	Language skílls: E.g. Very good knowledge of the English language, both in speech and in writing	Other essential qualifications: Any that are absolutely needed for the specific PhD postition (not related to the general eligibility)	Degree, or by complementary education, has aspecialization in: E.g. biomass-based thermochemical energy conversion processes and combustion technology	Publications (other than master thesisetc): E.g. peer-review scientific papers, technical reports, conference proceesings, …	Relevant work experience: E.g. experience from experimental research, or similar technical, workwith small-scale biomass combustion applications	Specific skills (technical, methods, programs, tools, etc): E.g. Experience of working with analytical methods such as SEM-EDS and XRD		
1	UWITUZE	Chantal	chanuwituze@yahoo.fr	Yes	Yes	Master of Science in Soil Science	Good	Not applicable	Not applicable (not requested in the call)	Not required in the call		Not required in the call	**GREEN**	She has a strong background in Soil science, while the PhD is based on a multidisciplinary theme. The proposal will need special attention to make sure it does not miss its quality

1 Defined in the UR Policy document

2 As by the text in the call for applications

🟩	Meets the criterion very well
🟨	Meets the criterion partly, uncertain
🟥	Does not meet the criterion at all

Outcome of the shortlisting

The members of the committee realized that the candidate has a strong background in Soil science, and the PhD is based on a multidisciplinary theme, so it fits well. The proposal will need special attention to make sure the crop science component is having strong focus. Hence, the committee decided to invite the candidate for interview.

-3. PhD in AGRICULTURAL SCIENCES, Specialisation in ANIMAL & VETERINARY SCIENCES

Research theme: Livestock nutrition and high-quality low-cost animal feed in Integrated Agriculture-Aquaculture systems (IAA).

Background

The University of Rwanda, College of Agriculture, Animal Sciences and Veterinary Medicine (CAVM) in collaboration with the Swedish University of Agricultural Sciences (SLU), Sweden through the Research Training Partnership Programme, Rwanda (2019/24) has received funding from the Swedish International Development Agency (SIDA), Sweden, to implement the research and training programmes **Toward Integrated and Sustainable Agriculture Production Systems (IA).**

The Overall objective of the project is to promote sustainable, nutritious and healthy agriculture productions systems and food and nutrition security. IA integrates three broad thematic areas: 1/ Integrated farming systems, 2/ Climate smart agriculture production systems; and 3/ Healthy and nutritious agriculture production systems. Equally important, agriculture production has to be achieved in an equitable and environment friendly fashion that promotes adaptation and resilience to climate change, engages and empowers women and youth, and identifies and reduces losses, wastages, inequalities, and inefficiencies in the production, transformation and commercialisation of agriculture inputs and products. In the long-term, this capacity building project will contribute to making Rwandan agriculture a sector that supplies rural and urban populations of Rwanda with healthy, abundant, diverse, affordable food, and in return will lift farmers and rural populations out of poverty and enable them to actively participate in the creation of, and benefit from, global prosperity.

Focus area: Livestock nutrition and high-quality low-cost animal feed (Integrated Agriculture)

- UR-Sweden programme: Integrated Agriculture subprogramme
- Available Positions: 1 Position
- Specific eligible criteria: Master's in animal productions

To meet the increased demand of high-quality food protein by an increasing population there is need for improving our knowledge on how to increase the production plant and animal-based protein in a sustainable way. In livestock and aquaculture production, feed is not only a key factor in determining the productivity of the system, but it also accounts for the higher proportion of the production costs. Because of the competition for finite land and resources, high-quality protein of animal origin should be produced attending the principles of sustainability and circular economy focusing on positive society-wide benefits (e.g., land-use change and environmental impact). In this context, an efficient management of nutrition -which would result in increased productivity, health and welfare- should exclude or minimized the use of human-edible food resources (Gill et al. 2010). Fish and ruminants are species capable to produce high-quality food proteins –meat or milk- on diets with none, or minimal, inclusion of human-edible food. Our proposal aims to work on integrated fish-livestock farming systems (Little and Edwards, 2003) based on locally available resources.

The project will focus in vivo studies on different ration formulations based on locally available feed resources (grasses, legumes and by-products); Grow black soldier fly (BSF) larvae, as a source of high quality protein for fish and poultry, to study different substrates based on organic waste, ruminant manure, and by-products (Devic et al., 2013); Fish and poultry: in vivo studies on different ration formulations based on BSF larvae and other locally available feeds-by products

Expected results: Feed and feeding practices to increase the supply of high-quality protein of animal origin based on locally available feed/by-products resources avoiding the competition for human edible food.

Members of the shortlisting committee

- Simon Rukera (D-Team Leader and supervisor UR)
- Guillaume Nyagatare (Team leader)
- Horacio Gonda (Swedish supervisor)
- Abraham Joel (Team Leader SLU)

Meeting agenda

Zoom meeting concluding discussion and agreement for short-listing the three applicants on November 9th. The application was shared to all members of the shortlisting committee in advance.

Summary on applications received

One applicants: - Gervais Ndazigaruye, - Barthazar Masengesho

Screening of candidates meeting general eligibility criteria

One candidate (Barthazar Masengesho) was not eligible because he was external from the UR while the call was totally internal. The second applicant (Gervais Ndazigaruye) presented a completed application file but the research proposal was not matching with the topic in the call.

Table of evaluation

See next page. Color coding provides an overview of how candidates meet the criteria, and the decision taken.

Candidate	Famiiy name	First name	e-mail	Meets the general eligibility criteria (yes/no) [1]	Application complete (yes/no) [1]	Specific essential criteria [2]			Specific desirable criteria [2]				Ranking	Assessment (short comments)
						Education (level and topic): E.g. Master of Science degree in energy technology, chemical engineering, or equivalent qualifications	Language skílls: E.g. Very good knowledge of the English language, both in speech and in writing	Other essential qualifications: Any that are absolutely needed for the specific PhD postition (not related to the general eligibility)	Degree, or by complementary education, has a specialization in: E.g. biomass-based thermochemical energy conversion processes and combustion technology	Publications (other than master thesis etc): E.g. peer-review scientific papers, technical reports, conference proceesings, …	Relevant work experience: E.g. experience from experimental research, or similar technical, work with small-scale biomass combustion applications	Specific skills (technical, methods, programs, tools, etc): E.g. Experience of working with analytical methods such as SEM-EDS and XRD		
1	NDAZIGARUYE	Gervais	shemagervais @yahoo.com	Yes	Yes	Master of Science in Animal Sccience and Technology	Good	Not applicable	Not applicable (not requested in the call)	Not required in the call		Not required in the call	RED	Veterinary background is fine however, the proposal is completely out of the scope. Lack of transcript, Cannot received.
2	MASENGESHO	Barthazar	Mbalt87@gmail.com	No	Yes	Master of Aquaculture	Good	Not applicable	Not applicable (not requested in the call)	Not required in the call		Not required in the call	RED	The candidate is from outside the University of Rwanda while the call was internal call.

[1] Defined in the UR Policy document

[2] As by the text in the call for applications

🟩 Meets the criterion very well

🟨 Meets the criterion partly, uncertain

🟥 Does not meet the criterion at all

Outcome of the shortlisting

The members of the committee received 2 candidates but one of the two was not a UR staff, (Mr Balthazar Masengesho). The latter application was rejected simply because this call is internal, at least for this first phase. The second candidate, Gervais Ndazigaruye had however an acceptable background (Veterinary medicine, however his research proposal was completely out of the scope of the current call. The candidate want to research on dairy cows while the call was about integrated livestock and fish nutrition. The committee decided to not receive the candidate for interview, as a way to allow candidates to read carefully the call before they apply to it.

-4. PhD in AGRICULTURAL SCIENCES Specialisation in AGRICULTURE ENGINEERING

<u>**Research theme:**</u> **Assessing irrigation water productivity in Rwanda and defining potential strategies for improvement towards Integrated and Sustainable Agriculture Production Systems (IA),**

Background

The University of Rwanda, College of Agriculture, Animal Sciences and Veterinary Medicine (CAVM) in collaboration with the Swedish University of Agricultural Sciences (SLU), Sweden through the Research Training Partnership Programme, Rwanda (2019/24) has received funding from the Swedish International Development Agency (SIDA), Sweden, to implement the research and training programmes **Toward Integrated and Sustainable Agriculture Production Systems (IA).**

The Overall objective of the project is to promote sustainable, nutritious and healthy agriculture productions systems and food and nutrition security. IA integrates three broad thematic areas: 1/ Integrated farming systems, 2/ Climate smart agriculture production systems; and 3/ Healthy and nutritious agriculture production systems. Equally important, agriculture production has to be achieved in an equitable and environment friendly fashion that promotes adaptation and resilience to climate change, engages and empowers women and youth, and identifies and reduces losses, wastages, inequalities, and inefficiencies in the production, transformation and commercialisation of agriculture inputs and products. In the long-term, this capacity building project will contribute to making Rwandan agriculture a sector that supplies rural and urban populations of Rwanda with healthy, abundant, diverse, affordable food, and in return will lift farmers and rural populations out of poverty and enable them to actively participate in the creation of, and benefit from, global prosperity.

Focus area: Assessing irrigation water productivity in Rwanda and defining potential strategies for improvement

- UR-Sweden programme: Integrated Agriculture subprogramme
- <u>Available Positions:</u> 1 Position

- <u>Specific eligible criteria:</u> Master in Soil and Water Engineering, or Master in Soil and Water Management, or Master in Agricultural Hydrology, or equivalent Master

Several studies in Rwanda are addressing the importance of in increasing the area of irrigated agriculture as a pathway for increased agriculture production and food security (i.e., PSTA II, 2009, MINIRENA, 2009; MINAGRI, 2018). Still, the same studies highlighting the need of increasing irrigation efficiencies and reduce environmental impact. Therefore, the main focus of this project will be to develop strategies for improving water productivity (more crop per unit water at a reasonable cost) and reduced environmental impact (such as less pressure on existing water resources and less impact on water quality). The focus are the marshlands but other landscape types will also be considered.

The first focus of this project is to set up a model for representing the irrigation baseline for some representative irrigation schemes. This will include water distribution and irrigation operations at the scale of farm fields (i.e., Brauman et al., 2013; Bekchanov, et al., 2010).

The second focus will be to assess the existing irrigation operation at farmer fields and the efficiency of the water distribution infrastructure (water losses, costs, net return and respond to farmer's need). The third focus will be to quantify how different strategies at farm level could potentially improve water productivity and water quality. This includes irrigation and fertilization scheduling, irrigation methods and crop selection. The fourth focus will be to define some strategies for water distribution that are harmonized with the irrigation scheduling at the farmer's field. The fifth focus will assess the impact of climate change on irrigation demand.

Expected results are: 1) Quantify the efficiencies of water distribution infrastructures; 2) Quantify the water productivity at the farmer's field for some major crops; 3). Propose some strategies for improvement in water distribution that consider the irrigation need at farmers' fields; 4) propose appropriated irrigation scheduling that consider climate, soils, crop needs and environment; 5) quantify the impact of climate change on irrigation demand for some major crops

Members of the shortlisting committee

- Simon Rukera (D-Team Leader UR)

- Guillaume Nyagatare (Team leader UR)

- Abraham Joel (Team Leader and Supervisor SLU)

Meeting agenda

Zoom meeting concluding discussion and agreement for short-listing the three applicants on November 9th. The application was shared to all members of the shortlisting committee in advance.

Summary on applications received

One applicant: Claude Kayijuka

Screening of candidates meeting general eligibility criteria

The candidate was eligible

Table of evaluation

See next page. The Color coding shows the decision made and the overview of how candidates meet the criteria

Candidate	Family name	First name	e-mail	Meets the general eligibility criteria (yes/no) [1]	Application complete (yes/no) [1]	Specific essential criteria [2]			Specific desirable criteria [2]				Ranking	Assessment (short comments)
						Education (level and topic): E.g. Master of Science degree in energy technology, chemical engineering, or equivalent qualifications	Language skills: E.g. Very good knowledge of the English language, both in speech and in writing	Other essential qualifications: Any that are absolutely needed for the specific PhD postition (not related to the general eligibility)	Degree, or by complementary education, has a specialization in: E.g. biomass-based thermochemical energy conversion processes and combustion technology	Publications (other than master thesis etc): E.g. peer-review scientific papers, technical reports, conference proceesings, …	Relevant work experience: E.g. experience from experimental research, or similar technical, work with small-scale biomass combustion applications	Specific skills (technical, methods, programs, tools, etc): E.g. Experience of working with analytical methods such as SEM-EDS and XRD		
1	KAYIJUKA	Claude	ckayijuka@yahoo.fr	Yes	Yes	Master of Technology in Agriculture engineering (Irrigation & drainage technology)	Good	Not applicable	Not applicable (not requested in the call)	Not required in the call		Not required in the call	YELLOW	The background fits well with the them but the proposal is not clear enough to respond to the call. However it could be improved

[1] Defined in the UR Policy document

[2] As by the text in the call for applications

(green)	Meets the criterion very well
(yellow)	Meets the criterion partly, uncertain
(red)	Does not meet the criterion at all

Outcome of the shortlisting

Considering that the Candidate's background fits well with the theme in the call, but the proposal need better focus to the thematic. the members of the committee decided to call the candidate for interview with a yellow scoring.

_____

-5. PhD in AGRICULTURAL SCIENCES, Specialisation in AGRICULTURE ENGINEERING

Research area: *Improving river water quality: Estimation of sediment yield and measures for reducing sediment discharge to the river towards Integrated and Sustainable Agriculture Production Systems (IA),*

Background

The University of Rwanda, College of Agriculture, Animal Sciences and Veterinary Medicine (CAVM) in collaboration with the Swedish University of Agricultural Sciences (SLU), Sweden through the Research Training Partnership Programme, Rwanda (2019/24) has received funding from the Swedish International Development Agency (SIDA), Sweden, to implement the research and training programmes **Toward Integrated and Sustainable Agriculture Production Systems (IA).**

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Focus area: Improving river water quality: Estimation of sediment yield and measures for reducing sediment discharge to the river

- UR-Sweden programme: Integrated Agriculture subprogramme
- Available Positions: 1 Position
- Specific eligible criteria: Master in Soil and Water Engineering, or Master in Soil and Water Management, or Master in Agricultural Hydrology, or equivalent Master

In Rwanda a combination of heavy rains, demographic pressure and unsustainable land use result in rivers carrying significant quantities of sediment, this brings several constrain for using the polluted water as for drinking, fish production or irrigation (i.e., PSTA II, 2009, MINERANA, 2009). Climate change prediction showing that this situation in the region will even aggravated if not controlling measures are taken (IPCC, 2014).

Sedimentation of eroded material in the rivers cause various problem to the water infrastructure and increase the frequency and intensity of flood events. Reducing sediment load is the pathway for protecting river water quality that support human activities and natural ecosystems.

The first main focus of this project is to set up a model for assessing the interaction between hydrology, land use and soil characteristics that enables to identify critical source areas and pathways for the sediments in the catchment (i.e., Newhama et. al., 2002; Aviles, et. al., 2018). The second focus will be to assess and test (some) potential measures for direct reducing sediment loads to the river and for protection of channels and water ways that are connected to the river (i.e., sediment traps, stabilization of the banks). A third action will be to estimate how soil conservation or change in land use could reduce sediment yields. The fourth action will include simulations with predicted changes of rainfall patterns under future climate in order to estimate the potential increase in sediment yields under current land use and with conservation measures evaluate under action three. The fifth action will be to stablish a basic water monitoring program in order to generate validation data for the model calculations but also for assess in the future the effectiveness of the sediment control measures and to relate water quality changes in the river to land use changes in the catchment.

Expected results: 1) identify critical source areas and pathways for sediments transport to the selected river; 2) Quantify the sediment load from different source areas; 3). Propose some measures for direct reducing sediment loads to the river and show their effectiveness for reducing sediment load; 4) Estimate the rate of sediment yields for rainfall patterns in future climate; 5) Establish a monitoring system for water quality for defining the baseline and evaluate the impact of change in hydrology and land use in the catchment.

Members of the shortlisting committee
-   Simon Rukera Tabaro (D-Team Leader UR)
-   Guillaume Nyagatare (Team leader UR)
-   Abraham Joel (Team Leader and Supervisor SLU)

Meeting agenda

Zoom meeting concluding discussion and agreement for short-listing the three applicants on November 9th. The application was shared to all members of the shortlisting committee in advance.

Summary on applications received
  One applicant: Rose Niyonkuru

Screening of candidates meeting general eligibility criteria
  The applicant was eligible

Table of evaluation
  See next page. The color coding provides the decision taken for the candidate, as well as a good overview of how candidates meet or not the criteria.

Candidate	Family name	First name	e-mail	Meets the general eligibility criteria (yes/no) [1]	Application complete (yes/no) [1]	Specific essential criteria [2]			Specific desirable criteria [2]				Ranking	Assessment (short comments)
						Education (level and topic): E.g. Master of Science degree in energy technology, chemical engineering, or equivalent qualifications	Language skílls: E.g. Very good knowledge of the English language, both in speech and in writing	Other essential qualifications: Any that are absolutely needed for the specific PhD postition (not related to the general eligibility)	Degree, or by complementary education, has a specialization in: E.g. biomass-based thermochemical energy conversion processes and combustion technology	Publications (other than master thesis etc): E.g. peer-review scientific papers, technical reports, conference proceesings, …	Relevant work experience: E.g. experience from experimental research, or similar technical, work with small-scale biomass combustion applications	Specific skills (technical, methods, programs, tools, etc): E.g. Experience of working with analytical methods such as SEM-EDS and XRD		
1	NIYONSHUTI	Rose	Niyonkururose1@yahoo.fr	Yes	Yes	Master of Science degree in Soil & Water Engineering	Good	Not applicable	Not applicable (not requested in the call)	Not required in the call		Not required in the call	GREEN	The proposal submitted for sediment yield and measures for reducing sediment discharge is good and well aligned to the call. She can be received for interview

[1] Defined in the UR Policy document

[2] As by the text in the call for applications

🟩	Meets the criterion very well
🟨	Meets the criterion partly, uncertainDoes
🟥	not meet the criterion at all

Outcome of the shortlisting

The members of the committee discussed mostly about the submitted files, only one candidate applied for the Agriculture Engineering/study related to sediment position. They realized that the submitted proposal for sediment yield and measures for reducing sediment discharge in rivers was good and well aligned to the call. She can be received for interview.
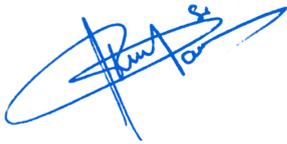
Signatures by :
<u>**Note taker**</u> and,   <u>**meeting chair**</u>

Dr RUKERA-TABARO Simon   **Prof. Abraham JOEL**
TL Integrated Agriculture, UR   TL Integrated Agriculture, SLU

13/11/2021

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