



Final evaluation of 5 IUC
and 3 Network programmes
of VLIR-UOS synthesis Report

Acronyms	3
1 Introduction	4
1.1 <i>Context</i>	4
1.2 <i>IUC programmes</i>	4
1.3 <i>Network programmes</i>	5
1.4 <i>Methodological approach</i>	6
1.5 <i>Challenges</i>	7
2 Summary of key elements of programme level evaluations	8
2.1 <i>Effectiveness and impact</i>	8
2.1.1 <i>IUC programmes</i>	8
2.1.2 <i>Network programmes</i>	10
2.2 <i>Sustainability</i>	13
2.2.1 <i>IUC programmes</i>	13
2.2.2 <i>Network programmes</i>	14
2.3 <i>Leverages and factors of success</i>	15
2.3.1 <i>IUC programmes</i>	15
2.3.2 <i>Network programmes</i>	16
3 Findings on learning questions	17
3.1 <i>Learning question 1: How to support PhD trajectories, with a focus on optimising diversity/inclusivity (gender and LNOB)?</i>	17
3.2 <i>Learning question 2: What factors and measures, at VLIR/IUC level and/or at partner institute level, support effective coordination of programmes?</i>	20
3.3 <i>Learning question 3: How to ensure uptake of research results?</i>	23
4 Findings and reflection on key transversal topics	33
4.1 <i>The IUC Concept</i>	33
4.2 <i>Gender equality and Leave No One Behind</i>	33
4.3 <i>Technology Transfer</i>	34
4.4 <i>Ideas for post-IUC initiatives</i>	36
5 Recapitulation of key conclusions and recommendations	39

Acronyms

CTU	Can Tho University (Vietnam)
EPN	Escuela Politécnica Nacional (Ecuador)
ESPOL	Escuela Superior Politécnica del Litoral (Ecuador)
HU	Hue University (Vietnam)
IP	Intellectual Property
IUC	Institutional University Cooperation
IUC HU	Institutional University Cooperation Hue University (Vietnam)
KTT	Knowledge and Technology Transfer
MMU	Mountains of the Moon University (Uganda)
NTU	Nha Trang University (Vietnam)
NM-AIST	Nelson Mandela African Institute of Science and Technology (Tanzania)
PSU	Program Support Unit
UCuenca	Universidad de Cuenca
UTN	Universidad Técnica del Norte
UCLV	Universidad Central 'Marta Abreu' de Las Villas
RIA2	Research Institute for Aquaculture No.2
ToR	Terms of Reference
ToT	Training of Trainers
UO	Universidad de Oriente (CUBA)
VLIR-UOS	Vlaamse Interuniversitaire Raad – Universitaire Ontwikkelingssamenwerking
VNUA	Vietnam National University of Agriculture

1 Introduction

1.1 Context

This “synthesis report” compiles key crosscutting insights and lessons learned, derived from the final evaluation of 8 VLIR-UOS funded long term partnership programmes supporting the cooperation between higher education institutions in the Global South and in Flanders.

This ‘final’ evaluation reviewed the second 5-year phase of these 8 programmes, being 5 Institutional University Cooperation (IUC) programmes and 3 post-IUC NETWORK programmes, all 8 programmes being phased out as of September 2023. The evaluation was conducted by a consortium led by C-lever.org and implemented in collaboration with ACE Europe and FocusUp.

1.2 IUC programmes

IUC programmes facilitate 12-year institutional partnerships aimed at empowering universities in VLIR-UOS partner countries in the Global South in their role as a development actor in society. The total duration of an IUC partnership thus comprises: 1 year start-up, 2 main phases of five year each and 1 year phase out. The 5 IUC programmes reviewed for this final evaluation were implemented in 4 countries: Uganda, Vietnam, Tanzania (2x) and Cuba. Each of these programmes had their own characteristics, in terms of focus, content, expected outputs and results. Notwithstanding such significant differences, all IUC programmes comprise significant components targeting enhanced institutional capacity of the supported university.

Country and programme	IUC title	Projects
Uganda – Mountains of the Moon University	Institutional University Cooperation with Mountains of the Moon University, Uganda	<ul style="list-style-type: none"> ✓ Project 1: Agricultural action research and community engagement for development. ✓ Project 2: The Transversal Institutional Strengthening project.
Vietnam – Hué University	Multidisciplinary cooperation for innovative education & research at Hué University & Hué Province	<ul style="list-style-type: none"> ✓ Project 1: Institutional strengthening. ✓ Project 2: Livestock and Aquaculture. ✓ Project 3: Coastal ecosystem and natural resources management. ✓ Project 4. Rural health care.
Tanzania – Mzumbe University	Self-Steering Sustainable Social Innovation Through Training and E-Research (4SITE)	<ul style="list-style-type: none"> ✓ Project 1. Strengthening Institutional Capacity in Teaching, Research and Community Outreach Services ✓ Project 2 Enhancing Information Services: Contents and Infra-structure ✓ Project 3. Enhancing good governance through integrated community-based activities – action research: (mobile) community based monitoring in the water sector ✓ Project 4 Entrepreneurship and Industrial Development in Tanzania through Blended Learning
Tanzania – Nelson Mandela African Institute of Science and Technology	Sustainable Management of Natural Resources to the Benefit of the Local Communities of Northern Tanzania	<ul style="list-style-type: none"> ✓ Project 1: Sustainable Smallholder Banana-Based Farming Systems to Improve Livelihoods in Northern Tanzania. ✓ Project 2: Development of Water Purification Technologies. ✓ Project 3: Applied Aquatic Ecology.

Country and programme	IUC title	Projects
		<ul style="list-style-type: none"> ✓ Project 4: Institutional Strengthening via ICT and Information Services. ✓ Project 5: Institutional Strengthening through Technology Transfer and Outreach.
Cuba – Universidad de Oriente	Universidad de Oriente promotes a sustainable development in the eastern region of Cuba	<ul style="list-style-type: none"> ✓ Project 1: Sustainable Risk Management Plan for Biodiversity and Food Production In The Eastern Of Cuba. ✓ Project 2: Biomedical Technologies and Services for Improving Medical Assistance in the Eastern Region of Cuba. ✓ Project 3: Natural Products and Pharmaceutical Services to Improve the Patient Quality of Life in Eastern Cuban Hospitals. ✓ Project 4: Safeguards of Cultural Heritage. Tools and Practices for Integrated Management in Santiago de Cuba and the Eastern Region of Cuba. ✓ Project 5: Obtaining, Characterization and Production of New Materials and Technologies for Industrial Systems. ✓ Project 6: Institution-wide Instruments for High Performance Research, Innovation and Technology Transfer.

1.3 Network programmes

A Network programme focuses on harvesting and multiplying opportunities addressing nation-wide needs in the educational and research area. It focuses on cross-institutional interactions such as inter-university collaboration in educational/curriculum development (master, PhD, postgraduate level) and collaborative research, engaging the involved partner institutions in broader international networks via the partnership with Flemish HEI partners. A Network programme is led by a former Institutional University Cooperation (IUC) partner which serves as the coordinating university.

The end of term evaluation looked at three Network programmes, all of which consisted of at least 4 university partners in the respective countries, Vietnam, Ecuador and Cuba collaborating with Flemish counterparts. Each of these programmes varied in terms of content, network modalities, expected outputs and/or results.

The table below provides an overview of the Network programmes

Country and programme	# Universities involved in the country	Content	Aimed at
Vietnam Network programme	CTU leading with 3 other universities: HU, VNUA and NTU and one research institute RIA2 (So in total 5 partners)	Aquaculture and Food technology	<ul style="list-style-type: none"> ✓ Credit exchange system for MsC students ✓ 1 PhD double degree programme and joint PhD co-supervision (including PhD scholarship) ✓ 2 international MsC for Aquaculture and Food Technology (core of the programme) ✓ Strengthening teaching and research capacity (including EN proficiency)

Country and programme	# Universities involved in the country	Content	Aimed at
Ecuador Network Programme	ESPOL leading with 3 other universities: EPN, Ucuena, UTM	Natural resources management	<ul style="list-style-type: none"> ✓ Doctoral school and PHD programme (but no PhD scholarship) ✓ 2 joint MsC programmes (core of the programme): Water Resources Management and Biodiscovery ✓ Enhancing interaction with societal stakeholders for uptake
Cuba Network Programme	UCLV leading with 3 other universities: XX	ICT development (in sectors of public water management)	<ul style="list-style-type: none"> ✓ Doctoral training through 3 existing doctoral schools (including PhD and post doc scholarships) ✓ Developing ICT services in collaboration with external partners ✓ Technological platforms to support open science and open education (including English teaching)

1.4 Methodological approach

The assignment commissioned by VLIR-UOS implies a comprehensive final evaluation exercise of 8 programmes, 5 IUC and 3 Network programmes, with each programme evaluation using a common methodological approach and shared evaluation framework that looks at the 6 OECD-DAC criteria. Each programme level evaluation was conducted by a duo of external evaluators, a national/regional and an international evaluator.

As requested in the ToR for this assignment and also applied for the programme-level evaluations, this synthesis report focuses mainly on the OECD DAC criteria of effectiveness and impact as well as sustainability. Furthermore, the report highlights the key leverages for change and factors of success; with attention for both similarities and differences between the three network programmes and between the 5 IUC programmes.

However the performance of the programmes, as visualised in the scoring applied in programme and project level self-assessments and external evaluator opinions, will not be compared in this synthesis report. Such comparison is deemed inappropriate because the scoring also depends on the context of these programmes and on the backgrounds and mindsets of the individuals having conducted the self-assessment and/or external evaluations. *(Refer to §1.5 for further explanation.)*

All 8 final evaluation exercises started with a self-assessment at project and programme level, implying active participation by the key stakeholders of the concerned universities, both in the partner country and in Flanders. The programme-level evaluation entailed attention for: (i) relevant changes (such as related to academic and/or institutional capacity) instilled by the programme, (ii) responses to common learning questions and (iii) analysis of a particular impact case.

The 5 IUC programme-level evaluations included a specific assessment of the university's institutional capacity and of how this capacity evolved between the start and the end of the 2nd phase of the IUC programme. This exercise was conducted using a specific tool that appreciated changes in 5 core capabilities. This tool was primarily used to highlight changes in capabilities that occurred since early 2019 and to discuss the contribution of the IUC programme to observed capacity enhancements; thus leveraging the experiences and insights of key stakeholders of the IUC partner university.

The 3 Network programmes used a specific tool to appreciate the performance of collaborative processes within the network, using a set of complementary dimensions.

Synthesis of findings is thus supported by the overall evaluation framework and the judgement criteria and by using specific analytical frameworks, such as the framework of the 5 Core Capabilities (what are

changes in capacity and what actors and factors have played a role in this), the framework of developing collaborative process (network programmes) and by the reporting on the impact case studies (sharing similar formats and addressing a set of shared questions).

To allow for cross-programme and cross-country synthesis, all 8 programme-level evaluations applied a shared evaluation framework and methodological approach, as detailed in a separate inception report.

It is also important to acknowledge that each programme has its own specific focus, ambitions and content and it operates within its own particular context. Also the evaluations were conducted by different individuals and teams. The individual profiles, experiences and perceptions of many individuals (the project team members, project leaders, programme managers, programme coordinators and national and international external evaluators) all contribute to the richness of insight resulting from programme level evaluations.

This report therefore offers a synthesis of key insights and cross-cutting learning resulting from the 5 IUC and 3 Network evaluations and draws extensively from the 8 programme-level evaluation reports.

1.5 Challenges

The evaluation budget allowed only for very limited additional data collection and certainly not for the additional data collection that would be required for project-level evaluations for the 29 individual projects, comprised within the 8 programmes under review. The programme evaluation reports present the scores of the project-level self-evaluation, with some comments by the evaluator, to the extent possible, building on further exchanges with the project leaders. It may be noted that some stakeholders explicitly regretted that the external evaluators were not able to conduct a deeper review at project level.

For the evaluation of network programmes, it must also be noted that the available budget (and correspondingly allocated) resources for the evaluation did not allow to visit all key participating universities. The focus of the field visit was on the programme coordinating university and on the impact assessment (1 case per network programme), to the extent possible one or more other partner universities were visited and/or key stakeholders from those universities were consulted during in person or online meetings.

Furthermore, in spite of a shared methodological approach and usage of the same tools, there may be different interpretations of how to apply the common tools and evaluation frameworks and the scoring mechanisms. Consequently, it is crucial to acknowledge that different evaluators, different project and programme teams, different country and programme contexts and other factors also influence the appreciation and scoring of programme performance vis-à-vis the evaluation criteria. Therefore, purely comparing the performance scorings from the different programme level evaluation reports would add few value and is not being pursued in this synthesis report.

2 Summary of key elements of programme level evaluations

2.1 Effectiveness and impact

This section on effectiveness and impact is first described in terms of achieving the academic results (including effects on staff and students) and then the impact on the wider university environment and society is considered. Finally, for the network programmes, the network of universities as such is described. Explaining factors for achieving results (or not) are identified where relevant (*see also more details under §2.3*).

Through the final evaluation exercise, the 8 reviewed VLIR-UOS programmes, implemented in diverse global settings, have emerged as transformative catalysts for higher education; yielding common elements that underscore their collective impact on research, education, and institutional development.

2.1.1 IUC programmes

Research and Teaching Capacities:

Across all 5 IUC programmes reviewed (*Uganda's MMU, Vietnam's Hue University, Cuba's Universidad de Oriente and Tanzania's NM-AIST and Mzumbe University*), the programmes' initiatives have significantly elevated the university's research and teaching capacities. Whether through the completion of a critical mass of PhDs, improved scholarly outputs or advancements in multidisciplinary research, all 5 programs have effectively contributed to environments that are conducive to academic growth.

Box 1 - Effective e-learning requires institutional support and e-pedagogy

The overall challenge at MMU (Uganda) with regards to education was to further integrate research findings in education, and the mainstreaming of a specific e-pedagogy by building competences amongst teaching staff to apply and use e-pedagogy to support student centred learning. The initial steps were strongly supported by the improvement of ICT infrastructure but gained strength and momentum during the Covid 19 pandemic when an increased use of e-learning occurred, and a dedicated department took shape at MMU. E-learning is now widely applied across all faculties as it leverages the constraint of teaching space and supports distance learning programs in the faculties of Health and Education. A survey of staff and students on the satisfaction and adoption of ICT in learning shows that teaching staff are adopting the use of ICT in teaching, but they still need more support to develop and use e-learning tools more effectively. Measures to further advance this, should include the development of an educational programme for e-pedagogy (*what should be the focus, what does it mean for supporting teachers and trainees?*), and its effective adoption into the operations of the university.

Scientific Quality and Publications:

Scientific quality improvement is a shared outcome. In Uganda and Tanzania (*both NM-AIST and Mzumbe University*), an upswing in publications, especially in peer-reviewed journals, has been a hallmark. Vietnam's Hue University and Cuba's Universidad de Oriente, too, have witnessed a surge in scientific output, indicating a common thread of enhanced academic rigor and knowledge contribution.

Institutional Capacity Enhancement:

Institutional capacity development is a recurring theme. Tanzania's NM-AIST, Mzumbe University and Vietnam's Hue University, as well as and Uganda's MMU (*now being recognised as a public university thanks to progress achieved with IUC support*), showcase improvements in institutional capacity, particularly in education, research, and industry collaboration. This demonstrates the IUC programmes' collective ability to fortify universities as robust academic entities.

Community Engagement and Outreach:

Bridging the distance between universities and communities, through action research, is a shared achievement in Uganda and Tanzania (*both NM-AIST and Mzumbe University*). This emphasizes a common commitment to fostering meaningful interactions and addressing real-world challenges through academic endeavours. Also in Cuba (*IUC UO*), the university is specifically engaged in addressing societal challenges through multiple partnerships.

Community engagement is a recurring theme, with efforts to bridge the gap between universities and communities through action research. While positive impacts are acknowledged, challenges in achieving widespread community-level change are recognized. Universities, being academic institutions, tend to remain within the boundaries of their research work and thus they encounter limitations in their community engagement. Partnerships with and engagement of other societal stakeholders are needed to enhance and sustain the uptake of academic findings by target communities.

Technology and ICT Integration:

Technology and ICT advancements are evident across different contexts. NM-AIST in Tanzania and MMU in Uganda have experienced improvements in ICT infrastructure, while Vietnam's Hue University has harnessed technology for significant research outputs. Also in Cuba, the application of the latest technology to address public service challenges underscores a crosscutting trend in embracing technological solutions.

Successes and challenges in fostering holistic development in higher education:

The combined achievements of the five IUC programs underscore their success in fostering holistic development in higher education. Strengthened research and teaching abilities, heightened scientific standards, enhanced institutional resilience, active community involvement, and technological integration all contribute to the effectiveness of IUC programs. The interconnectedness of these improvements is pivotal for academic progress and emphasises the importance of collaborative learning.

However common **challenges**, such as excessive workload for staff and the need for sustained funding, also emerge across these programs. Volunteerism, cost-saving and specific measures to improve efficiency and effectiveness were observed as coping mechanisms; all reflecting a shared struggle. Attracting additional funding remains a challenge in various contexts, underscoring a need for sustained financial support.

Box 2 - Involvement of Students in Programme Coordination increases efficiency

The programme at **Mzumbe University (Tanzania)** efficiently optimized its resources by integrating students into its coordination and implementation. This cooperation enabled a relatively small staff to accomplish a substantial volume of work. Students had the opportunity to gain practical experience and, when possible, receive stipends. While this approach was undeniably efficient, it prompts questions about the economic cost of running such a programme. Who bore the cost of this efficiency? Was it the voluntary students who occasionally earned stipends or the staff who dedicated extensive unpaid hours? Was the practice symbiotic or did it camouflage the true economic cost of the 4Site programme?

Factors of success for PhD trajectories and research uptake:

Less related to the diversity topic, addressed in §3.1 – *Learning question 1*, but more on overall success factors of PhD trajectories, the evaluators noted the following recurring good practices that contribute to the success rate of PhD trajectories while sometimes also contributing to research uptake :

- Strong support by university leadership to the PhD trajectories;
- Mentoring, follow-up and pertinent support to PhD candidates by both local and Flemish supervisors; combined with the advantages of the sandwich PhD trajectory concept.

- Short research cycles that lead to faster research results (e.g. within one year) and swifter publications, jointly also generating intermediate recognition and thus positive reinforcing cycles in leadership support;
- Needs-based research in connection with immediate needs; thus enhancing the feeling of belonging, meaning and stakeholder appreciations and thus reinforcing and maintaining commitment;
- Partnerships with stakeholder organisations, such as governments, private sector companies, civil society organisations, international organisations, etc. contributing to smoother field research;
- Use of research methods and techniques that can be implemented with local means and can thus be repeated and upscaled also after the end of the VLIR-UOS funded programme / project;
- A mechanism of small but flexible research budgets, made available by the programme or the institution, facilitating field work.

2.1.2 Network programmes

Strong academic results and effects on staff and students:

All Network programmes demonstrated a high degree of effectiveness, achieving the results as planned. This applies in particular for: (a) the number of PhDs realised (and the high success rate or PhD trajectories), (b) the increase of scientific articles¹ published, (c) the conception, launch and/or continuation of MsC programmes (*Vietnam, including a credit exchange system; and Ecuador*) and (d) the effective use of (lab and ICT) equipment.

The research driven curricula development and teaching surfaced very clearly from the cases in *Vietnam and Ecuador*, which for Ecuador and its traditional focus on teaching to the detriment of research was quite significant. Next to being research driven, new teaching methods were introduced taking into account and responding to the variety in students' background and their work experience (*both in Vietnam and in Ecuador*) and valorising the availability of expertise from different researchers/teaching staff that came with the network structure and approach (*also both in Vietnam and Ecuador*).

Good practices of research-based education that also contribute to the increase in scientific publications are noticed in both *Ecuador, Vietnam and Cuba*². In Ecuador, students were invited from the start to identify a research topic and develop it throughout their programme (co-tutored by professors from different universities and with access to equipment in different universities), leading to high quality MsC thesis and support from a pool of full students to academic staff involved in research. A very similar approach was adopted in Vietnam.

However, challenges related to bureaucratic procedures, the labour market and/or COVID, limited the achievements of the Network programmes. For example: (1) the interoperability of ICT systems in Cuba poses challenges still; (2) efforts to further develop doctoral programmes (such as the double degree PhD in Vietnam) was only successful in the leading university; (3) the ambition for establishing the doctoral school in Ecuador was not realised yet even though design of structure and operation are progressing; (4) limited success in the internationalisation of MsC programmes (succeeded only for 1 in 2 MsC programmes in Vietnam and not yet in Ecuador). The explanation is related to the toughness of

¹ It should be noted however that the evaluations were not able to confirm which number of articles was directly related to authors involved in and supported by the VLIR-UOS programme. The evaluation reports do mention 53 scientific articles against 21 planned (in Vietnam), 78 articles published in Ecuador (20 during phase 1 and 58 during phase 2) and 315 articles in Cuba (cumulated total at the end of phase 2).

² The talent plan in Cuba that already identifies promising students in high school also underlines the importance of strengthening quality of education with view to strengthening research production and quality.

bureaucratic procedures both at the level of the universities and the government, and, in the case of MsC internationalisation in Vietnam, to the weaker proficiency in English³.

Although the evaluation of the Network programme in Vietnam showed good results with regards to effects on students (on average 63% employed in the sector, with 70% of those earning higher wages and gaining more respect and status), the access of students to the job market or to higher earnings was less evident, in particular for African students⁴. A less conducive labour market as a limiting factor was also found by the evaluation in Ecuador. The interviews in Ecuador demonstrated that a MsC degree did not sufficiently convince the labour market of the added value of these students (as compared to students with a professional MsC)⁵.

Even though COVID related challenges at their level were rather well managed by the programme partners themselves, **COVID** overall, had multiple hampering effects on the execution and effectiveness of the Network programmes. The COVID pandemic hampered in particular the attraction of students from industry and international students (in Cuba); it affected (international and national) student mobility and limited the time for organising joint practice between students (Ecuador), limited the contacts with higher education bodies (for e.g. in order to regulate the establishment of the doctoral school in Ecuador), and affected access to training in English (Vietnam).

The results of the Network programmes on the wider university environment of the participating universities and beyond also appeared clearly from the evaluations, *in particular in Ecuador and Cuba case and, to a lesser extent, in Vietnam.*

Effects beyond the faculties that were directly involved in the programme were reported with regards to adopting innovative teaching methods and research-based learning in Vietnam and in Ecuador.

Other effects were related to organisational aspects. In Ecuador the joint MsC programmes challenged each participating university to actually review its processes of managing courses and offering expertise, resources and knowhow; leading for instance to the centralisation of the administration of the programmes and using the university partners' associated enterprises to overcome heavy bureaucratic procedures that rule state agencies. In Cuba, the partners automated multiple of their university processes which affected the whole university.

The programmes in Cuba and in Ecuador also reported effects on other universities and on the educational context. Increased interest in the joint programme modality and in the research-based education model was noticed in Ecuador. In Cuba, the repositories, learning environments and other outputs of the Network programme are now available for all researchers and universities in Cuba and the ICT infrastructure developed by the Network Programme allowed the creation of an academic supercomputing network. The datacentre of the leading university in Cuba might even become a public IT provider. In Cuba, there is the example of the adoption by the Cuban government of the concept of open science and open education. *(This concept envisages a national network where Cuban academics and population in general can enjoy free and open access to publications, interactive games, videos and other educative materials; with the aim of making education more accessible for the citizens.)*

³ Progress seems yet too limited to firmly boost internationalisation of programmes, e.g. dual degree programmes and national enrolment in international MsC (Vietnam). This internationalisation is however considered important *(more in particular with regards to sustainability – see further below)*.

⁴ The figures from the Vietnam case highlight that job success for African students seeking jobs in their country was lower compared to the Asian average.

⁵ This is also affected by a recent national regulatory change that took place in 2022, which eliminates the differentiation between a full-time research-based master programme and a part-time professional master programme that does not require a thesis for completion.

The impact on society:

While a wider and rather direct impact on society did not appear clearly from the Ecuador and Vietnam cases⁶, it was evident in Cuba (strongly influenced by the particular context and involvement of government).

- ✓ Uptake of research results, for example, proved difficult to realise by the partners in the Ecuador Network Programme, notwithstanding the efforts (producing evidence with stakeholders, building the capacity of public water companies, developing successful relations with government agencies at local level, workshops, thematic consortia, among other good practices). The absence of a collaborative culture between academia, government and private sector combined with the absence of a more explicit strategy for research uptake (*in which functions such as 'research valorisation' would be acknowledged and therefore be more effective*) is an explanatory factor.
- ✓ Besides potential impact through alumni (which was the core of the programme), the Vietnam report did not highlight particular other examples of impact on society.
- ✓ The situation and context in Cuba are quite different. The particularities of the Cuban Network Programme need to be highlighted: from the start, there has been a very strong involvement of the Cuban government (the Ministry of Higher Education, but also the Ministry of Science Technology and Environment), in particular in developing and supporting the concept of open science and education and development of tools that can support the sovereignty of the country (in the context of the US blockade).

Furthermore, changes in legislation (2021) are making it easier for private companies to be created and owned (including by universities) and to commercialise research products. From the very beginning, stakeholders in the Cuba Network programme have worked with a model of research that is linked to industry and commercialisation of research results (*see also learning question on uptake ...*).

The evaluation report of the Cuba network programme underlines increased participation of academic staff in important national commissions/forums, such as the Cuban Academy of Sciences and the National Innovation Committee.

Promising ICT services and tools are being developed by the Cuban network programme⁷ and these have the potential to support the development of 'smart' cities which is a key objective of the Cuban government.

The added value of Network Programmes:

Complementing the effects on students, wider university community and society, described above, the evaluation also confirmed the effectiveness of the whole network approach and structure in enhancing collaborative processes between partnering universities and their stakeholders. Using a specific assessment tool, network programme partners were invited by the evaluators to share their appreciation of the collaborative process on six elements: (i) collaborative context, (ii) competent representation, (iii) embracing diversity, (iv) collaborative attitude, (v) effective communication and (vi) collaborative structure. Overall finding of the reports (based on a joint scoring exercise, discussion and additional interviews) is that *partners particularly appreciated following elements: the collaborative context* (as this kind of focused and result driven collaboration in the competitive context of higher education was new), the *competent representation* (which ensured a good mix of expertise to offer to students and to support research) and the *communication*⁸, in particular the increasing quality of virtual communication and the

⁶ However also for the Ecuador and Vietnam cases it is worth mentioning the effect on the professional life of students, and indirectly on their economic contribution which the respondents assessed to be higher than before graduation.

⁷ The actual roll-out and commercialisation is still to be awaited and will be based on the development of privately or publicly owned providers of IT added value services.

⁸ With a small note for the case of Ecuador where partners highlighted that communication on the budget (state of affairs and transparency in allocation) could be better.

improvement of English proficiency of academic staff, which strongly supported the communication between Network partners.

Leadership by the university coordinating the Network programme (a former IUC university) was accepted by the other partners, but this does not imply that the main results were only observed in this university. For instance, in the Cuba Network programme, more than 50% of the publications were in collaboration with researchers outside the lead university but involved the network programme. Moreover, in the three programmes, respondents explicitly appreciate the fair distribution of equipment and infrastructure among the network partners (or even the broader academic community, such as in Cuba).

The dynamics of a Network programme must also be highlighted. The report of the Ecuador network programme describes for example how more and more professors from both Ecuador (over 30) and Flanders (over 100) became involved and how the established relations offered a *continuous basis and source of opportunities for students and faculties to learn from*; e.g. through leveraging diverse perspectives when trying to solve (societal) problems, or through students enrolling in graduate programmes at Flemish universities. Such strengths, according to stakeholders consulted, are the result of early and strong investment in developing good personal relationships.

The Network approach contributed to following changes :

- i. deeper understanding between the national partners of each other's expertise;
- ii. enriching curricula and research by combining diverse expertise and perspectives from within the country;
- iii. increased access for more universities in the country to new/additional partners from the Flemish, European and International networks of the Flemish HEIs; which proved very useful in particular for research applications, student/staff mobility or the future development of a regional MsC programme in Asia;
- iv. decrease in costs for developing (not necessarily executing) a MsC programme by an individual university (Vietnam and Ecuador).

In Ecuador and in Vietnam, this awareness of cost-effectiveness led to a shift towards a shared culture of collaboration; with the Network Programme thus being a catalyser of interuniversity and interdisciplinary academic exchange.

Overall, *added value* was clearly *stronger* for those university *partners* in the Network that had *less exposure* in the past and a *weaker research tradition*.

2.2 Sustainability

2.2.1 IUC programmes

Across the IUC programs the evaluation found common elements contributing to improved sustainability of the supported university.

All 5 IUC programmes have made significant contributions to the *institutional sustainability* of the partner universities. This is evident in: (a) enhanced recognition and support by government, with in one case the transition to public university status (e.g. for MMU), (b) improved capacity to attract and manage diverse funding sources and (c) sustainable enhancement of institutional capacity across the full range of core capabilities of these 5 universities (*as evidenced in all 5 IUC programme evaluation reports*).

Enhancement of *academic sustainability* is also a shared achievement across the IUC programmes, with embedded improvements in both research and teaching. For example, the integration and retention of PhD graduates, curriculum reviews and innovative educational practices all contribute to improved academic performance; including embedded potential for sustaining such enhanced academic performance on medium and longer term.

Not surprisingly, financial sustainability remains a challenge across IUC partner universities, with varying degrees of dependence on government funding and/or other limited sources of funding. The evaluators appreciated initiatives to diversify funding sources for research and investment and to enhance fundraising capabilities, implemented with support of the IUC programmes; but generally this does not suffice. In other words, it must be acknowledged that the limited financial resources of the IUC partner universities may somehow jeopardize the continuation of the enhanced performance levels achieved with support of the IUC programme.

2.2.2 Network programmes

This section looks at institutional, financial and academic sustainability of the main results of the Network programmes and at the sustainability of the network structure as such.

In terms of **institutional sustainability**, the evaluation reports confirm the existence of institutional mechanisms and processes or agreements that integrate the outputs and results of the programme in the university systems. This is the case for the credit exchange programme (*Vietnam*), the MsC programmes (*Ecuador*), the further development of the doctoral schools (*Ecuador*), and the ICT infrastructure and established partnerships (*Cuba*).

The situation is less clear when looking at the sustainability of the Network approach and structure. Notwithstanding appreciation for and ownership of the network approach, the observed ownership is often stronger at the level of the lead university.

- ✓ In Ecuador, the continuation of the network as a structure that functions as such, seems to have a chance to be sustained. The further organisation of co-teaching and exchange visits, training, the joint application for research grants as a network structure and the integration as a network structure in international research is evident. The explanatory factor in Ecuador is related to the deliberate changes in administrative systems of the partner universities to make them more conducive for collaboration (although the rigid nature of university systems remains a challenge) and to the strong bottom-up interest in further collaboration. The Network model might also be replicated by Ecuadorian partner universities to structure and support collaboration in other domains (which is already envisaged on the topic of circular economy).
- ✓ In Vietnam and Cuba increase in grant applications involving partners from the network have been noticed, but the network structure as such is less played out.
- ✓ In Cuba, different forms of collaboration have already been in place for years in terms of publications, joint projects, joint courses and sharing resources; such collaboration are expected to be sustained in one or other form.

Academic sustainability is well ensured in all three cases (Vietnam, Ecuador and Cuba) in terms of retention of key academic staff involved; even though, in particular in the Cuba case, retention of key academics and strong IT expertise remains a continuous challenge to be addressed.

Box 3 –Success in staff retention realised through collaboration with private sector

In **Cuba**, the partnering universities developed some good practices to foster staff retention and better income for key staff by not competing but collaborating with the private sector. This includes initiatives that can guarantee an early knowledge transfer dynamic, where former academic specialists or PhD students remain connected and contribute to master programme development and teaching at partner universities. Those were the cases of TECISS Interfaz SURL and Xetid (a State-owned tech company), where some of the students and professors work part-time, in a good environment. This system also allows the detection of young talents that could continue to work at the university and at these companies at the same time, in a virtuous circle.

As observed for the IUC programmes, an **important challenge lies in the financial sustainability of the Network programme results**. This applies more in particular to the MsC programmes in Vietnam and in Ecuador: there is little access to funding from local stakeholders (for e.g. private sector) and the

number of paying students is low. Even though the Vietnamese MsC for aquaculture will be absorbed in an international master for Tropical Aquaculture with other Asian universities and the MsC on Food technology will be integrated in the International MsC managed by KULeuven and UGhent, most probably there will not be enough funds to pay for mobility of teachers in Vietnam and there are too little paying students for now (reliance on funding by the Network programme to provide for MsC scholarships is too high). The situation is less worrisome in Ecuador, but also here the challenge is to raise the number of paying students and to compete with shorter professional programmes, which is challenging for a 2-years programme that currently offers little guarantee on a (better) job. Moreover, maybe due to the very strong dynamic in the Network with Flemish HEI, the current capacity for the Ecuadorian Network (partners) to attract other funders (despite expectations) is limited.

The strategy in Cuba lies in the commercialisation of services and IT applications (more than 38 contracts are reported to have been signed and already some of them started) and the creation of companies that could offer academic staff opportunities to top up their salaries (and thus ensure retention of staff). There is proof of new collaboration projects with Flemish HEI and the signing of a Strategic Initiative with VUB.

2.3 Leverages and factors of success

2.3.1 IUC programmes

Across the IUC programmes, the evaluator identified several recurring key leverages and factors of success; this synthesis exercise thus reveals insights into the common elements that contribute to effectiveness and impact of the IUC programmes.

A consistent theme across the IUC programmes is the pivotal role of **conductive partnership** between all stakeholders involved. The collaborative approach, characterized by a combination of responsibility and flexibility at various levels, underscores the importance of robust partnerships in achieving program objectives. Strong commitment by leadership and programme / project teams in the supported IUC university as well as by Flemish partners, e.g. universities and university colleges, emerged as a key driving force contributing to the success of an IUC programme (*as observed to a lesser or larger extent for all 5 IUC programmes*).

Transparent and effective coordination also emerges as a critical success factor. The ability and commitment to ensure excellent coordination of programme implementations has been instrumental for the performance of the IUC programmes. The feedback obtained from stakeholders also highlights the importance of a well-organized, proficient and transparent coordination structure, including the role of a dedicated programme manager. The contribution of the programme manager, complementing the leadership by both programme coordinators, emerged as key for successful programme implementation. (*For more details, please refer to the responses on learning question 2, provided in §3.2.*)

A **shared vision** plays a crucial role as well. A shared long-term strategic vision combined with strong leadership and openness to alternative ideas contributed significantly to effectiveness of IUC programmes. Transparent decision-making processes also feature prominently, ensuring active participation and alignment with strategic objectives.

Government support, as witnessed in the case of MMU Uganda becoming a public university and in the case of UO Cuba, and **emergence of new government policies** on higher education in Tanzania for both Mzumbe University and NM-AIST or on enhanced possibilities to create companies, also by universities and to commercialise research results and engage in partnerships, such as in Cuba, also served as transformative levers.

Flexibility and adaptability, demonstrated in the face of challenges such as the Covid-19 pandemic, showcase the resilience of these IUC programmes. The ability to extend timelines and integrate lessons learned from earlier phases underscores the importance of adaptability in achieving sustained success.

Implementation of mechanisms to ensure a strong **connection between research and education** was identified as a success factor; this was observed in for example Mzumbe University, NM-AIST Tanzania and UO Cuba. Such alignment ensures that research findings directly contribute to educational quality and innovation, emphasizing the interconnectedness of these elements.

In *summary*, the synthesis exercise reveals a tapestry of interconnected success factors such as: strong partnerships, effective coordination, visionary leadership, government support, adaptability, and a commitment to collaborative practices and transparent governance. These elements collectively contribute to the holistic impact and effectiveness of the evaluated IUC programmes.

2.3.2 Network programmes

Investment in equipment⁹ proved to be a very important contributing factor for the effectiveness of the three network programmes. ICT infrastructure was generally important in terms of facilitating and professionalising online teaching and interaction (especially valuable during COVID), which was crucial to allow students to learn from professors based in different universities (and cities) while reducing the costs associated with transportation, accommodation, and related expenses. In Cuba, investments in the ICT infrastructure, data centres, systems and applications were at the heart of the Network programme, and these contributed to improved accessibility of research results for academic staff and students (through central repositories and a shared technical reference model and teaching), prospects of being integrated in regional academic networks and the development of applications in collaboration with industry.

Other factors contributing to effectiveness of the network programmes are related to significant efforts and (well appreciated) results in refining and enriching content of courses, sharing of teaching materials and providing training in teaching methodologies (*Ecuador and Vietnam*). Another conducive factor, as the example of Ecuador demonstrated, is the willingness to review existing administrative practices, identify and eliminate (as far as possible) obstacles for collaboration.

In all three cases, also synergies with initiatives of other programmes, either initiatives funded by VLIR-UOS or initiatives supported by other donors / sources of funding (*mainly in Cuba, amongst which the British Council, UNESCO and enterprises*) played a role in achieving good results.

⁹ However, it should be noted that the evaluation teams did not undertake any analysis of investments in terms of level of costs or cost-effectiveness of such investments in equipment.

3 Findings on learning questions

Evaluation teams were requested to identify experiences, good practices, insights or other elements from the reviewed programme that are relevant for answering the learning questions. This was done through a combination of explorative and mapping approaches. However, not all learning questions were equally relevant for each programme (*this is understandable because the VLIR-UOS IUC and Network programme system did not require specific attention to these topics and/or because the issue did not occur in programme¹⁰*) or could not receive sufficient attention during each of the 8 evaluation exercises (*considering the limited time available for these evaluations*).

3.1 Learning question 1: How to support PhD trajectories, with a focus on optimising diversity/inclusivity (gender and LNOB)?

How to support PhD trajectories, with a focus on optimising diversity/inclusivity (gender and LNOB¹¹)?

Mapping and analysing measures and practices developed within programmes and/or existing in or developed by universities to address diversity/inclusivity challenges related to PhD programmes / processes; while also maintaining or further optimising / enhancing the quality of the PhD.

Paying attention to: influx of candidates, retaining participants, support structures (administration, doctoral training, doctoral schools), division of tasks amongst promoters and supervisors, etc.

PhD trajectories stand quite central in IUC programmes in particular. A general principle is that PhD scholarships granted as part of an IUC or Network programme are to contribute to enhanced research capacity and fit in the broader organizational and institutional strengthening of the partner institutions supported by the programme. This means that PhDs graduates are expected to take up important organisational roles after their graduation. (*For example, in Hué University in Vietnam, all PhD graduates are seamlessly integrated into the university's operations. The selection process for PhD scholarships explicitly focuses on upgrading the existing university staff; this emerged as a crucial element for the sustainability of the program.*)

While the role of PhD candidates in the programmes as 'agents of change', with corresponding limitations and challenges, appeared as a key issue from the previous framework evaluations¹², this did not come up as such in the current evaluations (except for the IUC MMU in Uganda).

Through its learning question 1, the current final evaluations and their synthesis included a specific focus on how procedures and processes related to the selection and accompaniment of PhD candidates address the issue of inclusion (LNOB) and gender. The evaluation teams thus looked at measures that were taken to ensure attention for specific needs of different categories of potential PhD candidates in order to strengthen the diversity of the PhD trajectories and graduates. This means that the general approach for supporting the PhD trajectories was not specifically analysed under this learning question, but interesting practices were nonetheless captured by the evaluation teams (and are mentioned in the programme level reports and to some extent in the synthesis of the programmes in chapter 2).

¹⁰ For example, the network programme in Ecuador did not have a PhD component and the Network programme in Vietnam only provided limited support through PhD summer schools and a joint PhD degree system.

¹¹ LNOB – Leave no one behind.

¹² Report of the IUC Review consultation work-shop, April 1, 2019.

Overview of female/male PhD candidates and graduates phase 2.

Country/programme phase 2	PHD male selected	PhD female selected	PhD male finished (or defence planned)	PhD female finished (or defence planned)
	Selection rate (% of gender in total)		Completion rate (% of completion versus selection – per gender)	
Vietnam IUC (including phase 1)	5 (38%)	8 (62%)	5 (100%)	7 (88%)
Vietnam network	Not applicable			
Cuba IUC	No data available		8	13
Cuba Network	No data available		5	4
Ecuador Network	Not applicable			
Uganda MMU	7 (58%) (phase 1 and 2)	5 (42%) (phase 1 and 2)	7 (100%)	5 (100%)
Tanzania Mzumbe	7 (54%)	6 (46%)	7 (100%)	5 (83%)
Tanzania Nelson Mandela	6 (86%)	1 (14%)	6 (100%)	1 (100%)

Overall, the conclusion from the evaluation reports is that there was few specific focus or policy in the programme regarding the equal participation of men and women in PhD programmes nor was there any special attention to actively attract disadvantaged groups and strengthen their access to the PhD scholarships. To be fair: it was not requested by VLIR-UOS to explicitly address this issue in the submission and/or implementation of programmes for the Network or IUC modality.

In what follows, the above finding is further elaborated.

The selection process of PhD students is developed by the partners and consolidated in the management manual. The manual, *for example of MMU IUC Uganda or Mzumbe IUC Tanzania*, does not refer to gender (or other categories of potential candidate PhD students that might be disadvantaged) in any way, nor is there a link/reference to the gender policy or the HR policy of the academic institution. Apparently, none of the 8 programmes started with an explicit analysis of specific obstacles faced by various categories of students (in the specific context) in relation to having access to post-graduate study opportunities or PhD scholarships. The programme documents, for example of the MMU IUC Uganda programme, may state that women will be encouraged and motivated to apply for available positions, but this is not an institutionalised process to address gender specific hurdles or limitations. Furthermore, there is no evidence that programme stakeholders apply a broader diversity lens and thus think beyond gender considering for example people living with disability, religion and ethnical background.

The evaluation reports do clarify that, in practice a gender balance (in terms of numbers) is taken into account by the programme stakeholders when selecting students for PhD trajectories (as such often performing better than overall M/F ratios in the total number of PhD students in the university or country), even if it is not formally part of the criteria (or does not hold a primary position as criterion). (*For example in Mzumbe University Tanzania, the PhD Selection Committee consciously considered gender balance, achieving overall about 50%female – male ratio.*) When gender balance in selection is a point of attention, this does not automatically yield good results. (*The evaluation of NM-AIST Tanzania for example shows that only 1 out of 7 PhD students in phase 2 was female¹³.*)

¹³ Figures in the IUC NM-AIST Tanzania evaluation, page 36.

The reason for limited gender/diversity focus seems to be that the first objective is to select good PhD candidates who are able to formulate a qualitative strong proposal, have a relatively strong academic background, demonstrate a certain level in English proficiency and are preferably staff of the partner university. This proved to be challenging in more than one case and was not only related to gender: e.g., in NM-AIST in Tanzania and in MMU in Uganda the evaluators were informed of difficulties to find suitable staff from the university and in Vietnam selection challenges related to weak proficiency in English. Open and competitive or more informal selection processes as such do not seem to make a difference in terms of ensuring more diversity (as far as the information from the evaluation processes and reports allows to conclude).

The evaluation reports did not identify specific measures installed by the partners to support and maintain diversity in the process of executing and accompanying the PhD trajectory (e.g. in terms of academic supervision and logistical support).

However, it is clear from the reports that specific needs of women PhD candidates, more often having heavier responsibilities at home and often being (young) mothers, have been discussed by partners (including team leaders, supervisors and PSUs) and have been catered for, e.g. by allowing some flexibility in the trajectory or by provision of ad hoc support. It is also clear from the reports that it is the PhD candidate in question that has to raise the issue, meaning that attention for specific needs is not integrated in procedures or mechanisms and is left to the conscience and responsiveness of PhD supervisors or the HR staff in the institutions concerned.

The modality of sandwich PhDs seems to offer some opportunities for women to overcome challenges related to specific cultural norms (e.g. for living in another country by themselves) and allows them to limit the time abroad.

Measures that can be beneficial for PhD candidates (in general but also benefiting specific categories of students that need to juggle various responsibilities outside of the university) reported are the following:

- ✓ Exempting the students from their tasks in the university, such as in Cuba, MMU in Uganda (but not always from specific tasks in the programme, for e.g. as project leaders or change agent).
- ✓ Providing small funds for PhD field research is supporting those students that have no means of financing this work by themselves.

Good practices and challenges to address

Various measures in the Network programme in Ecuador demonstrate how to promote and support diversity by improving access to study and scholarships (mainly at the level of MsC): (i) integrating a category B university as part of the network, (ii) requirement for each partner in the network to provide extra Network scholarships that also cover mobility between universities, (iii) the hybrid teaching model that indirectly generated opportunities for students outside of the main epicentres to receive high quality post graduate education. However, no specific measures were taken to attract women students to MsC programmes or to ensure access for other vulnerable and excluded groups.

Programme stakeholders have been challenged by the evaluation teams to reflect upon specific challenges or obstacles. As a result the following issues were identified by the respondents (though not yet acted upon):

- ✓ Cuba IUC evaluation: more women are generally working at the universities, but they are underrepresented in the scientific output (publications). It would be interesting to document this better and to analyse how societal and family roles of men and women influence the capacity to invest in academic publications, and, in general to study how universities can safeguard attention for diversity.
- ✓ Uganda MMU IUC evaluation: stakeholders are aware that strong social support and flexibility are important in each PhD trajectory, more in particular for groups with specific needs (for e.g. female candidates who carry their productive and family care roles into the academic pursuit).

A key lesson is also that attention for equal numbers in selection seems to help in almost every case to ensure that between 30 to 50 % of the selected candidates is female, even though this attention is not yet or partly institutionalised.

However we must also acknowledge that explicit attention for diversity as such and for pro-actively supporting access of a diverse group of PhD candidates was not present in any of the programmes.

Because of lack of ('upstream') measures to create a diverse pool of potential PhD candidates, it is not always possible for local institutions to make very strategic choices in the composition of the PhD candidates in the programme.

3.2 Learning question 2: What factors and measures, at VLIR/IUC level and/or at partner institute level, support effective coordination of programmes?

What factors and measures, at VLIR/IUC level and/or at partner institute level, support effective coordination of programmes ?

Coordination (of IUC / network programmes) is understood here as: ability to bring different parties and projects to work well together.
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This learning question 2 about contributing factors is including but going well beyond personal characteristics for the coordinators. It is looking at: definition of various roles (vis-à-vis other functions in the IUC/network programme and between North and South), organisation/capacity of support staff/teams, tools and strategies for change management, measures to strengthen or to facilitate coordination roles and/or enhance coordinators' added value, measures to manage the differences in rules/procedures between universities (from the start of the programme), ...

This synthesis exercise confirms that effective programme coordination requires a good combination of institutional, procedural, and interpersonal factors.

The project self-assessment template already includes the following factors that support effective coordination of programmes: quality of communication, good working relations and synergy between PSU and project teams, active involvement and mutual trust and joint decision-making. These are confirmed and complemented by the key success factors for effective programme coordination distilled from this evaluation of 5 IUC and 3 network programmes.

1) Institutional factors

- a) Institutional support, recognition and embedding of an IUC or Network programme.
 - i) Strong and embedded institutional support for the programme facilitates integration of program outcomes into institutional policies and organisational practices; while also ensuring continuity despite changes in top management (*NM-AIST in Tanzania but also both IUC and Network programmes in Cuba*).
 - ii) Involvement of university management is essential to create the necessary conditions for effective coordination (*Mzumbe University in Tanzania and MMU in Uganda*).
 - iii) Ensuring that influential project leaders propagate and implement decisions effectively (*HU Vietnam*).

Remark: for the involvement of Flemish stakeholders (e.g. coordinator, project leaders and team member) institutional support and recognition by the Flemish universities were not as frequently cited as enabling factors. Flemish academics' involvement is considered to be rather driven by an intrinsic motivation and satisfaction of being able to contribute to the achievement of programme's ambitious goals, the success of the partner institution, and the empowerment of a new generation of academics in the South. The continuity and sustainability of the networking and partnerships with these emerging academics held significant value for the Flemish stakeholders. (e.g. *NM-AIST in Tanzania, MMU in Uganda and the Network programme in Ecuador*).

- b) Conducive institutional and organisational culture
 - i) Strong ownership and involvement of university leadership over the IUC, complemented with short communication lines (typical for a small university such as MMU) are key for effective programme coordination (*MMU in Uganda*).
 - ii) Shared acknowledgement of the programme's relevance, in particular at the central university level (*HU Vietnam*).
 - iii) Instilling a sense of collective responsibility at all levels, including PhD candidates, thus ensuring that all key stakeholders interact effectively with those in charge of programme coordination (*MMU in Uganda*).

2) Procedural factors

- a) Performance of the steering committee.

The well-structured organization of steering committee meetings played a pivotal role in streamlining decision-making processes and ensuring the timely achievement of intended outputs and targets. (*NM-AIST in Tanzania*)
- b) Empowered Program Support Unit (PSU)
 - i) Empowering the PSU, beyond being a conduit for reporting (*MMU in Uganda*).
 - ii) Program design decisions are made collectively, and the PSU's empowerment is crucial for effective communication and interpretation of program requirements (*NM-AIST in Tanzania*).
 - iii) The PSU acted flexible with a focus on problem solving (*Mzumbe University in Tanzania*).
- c) Transparency and Joint Planning
 - i) Emphasize transparency, especially regarding budget allocations. Joint planning, with openness for flexibility, fosters understanding and adaptability. (*MMU in Uganda*)
 - ii) Quarterly monitoring and reporting ensure alignment with requirements, helping identify and address issues promptly. (*NM-AIST in Tanzania*)
 - iii) The frequency of steering committees proved to be effective for joint planning and steering of the IUC programme and projects. In addition, a regular reporting rhythm allowed PSU to have an up to date understanding of the level of implementation of the programme (*Mzumbe University in Tanzania*).
 - iv) The management manual is the Bible of the IUC programme, specifying all procedures associated with the implementation of an IUC programme. At the start of the IUC programme staff was trained to use the manual (*Mzumbe University in Tanzania*).
 - v) Intensive collaboration between Northern and Southern partners, characterized by a bottom-up approach where decisions originated at the project level and were shared and discussed between Northern and Southern collaborators before being escalated to program management. This approach fostered a sense of ownership among stakeholders and enhanced synergies. (*NM-AIST in Tanzania*)
- d) Inclusive Decision-Making and Stakeholder Involvement:
 - i) Strategic inclusion of stakeholders, including PhD students, in steering committee meetings ensures diverse perspectives and fosters collaboration. (*NM-AIST in Tanzania*)
 - ii) Consultative decision-making processes and transparency in decision making are appreciated by actors involved (*Mzumbe University in Tanzania*).
- e) Flexibility and Adaptability
 - i) Allow local institutions autonomy in reallocating funds with Steering Committee approval. Adapt to changing contexts, such as the impact of the COVID-19 pandemic. (*NM-AIST in Tanzania*)

- ii) VLIR-UOS demonstrated a deep understanding of partner institutional realities, offered flexibility in program extension during the pandemic, and allowed coping with challenges, like the US blockade. (*IUC UO and Network programme in Cuba.*)
- iii) Maximise flexibility of procedures. For example, projects could loan money from each other and repay the next year (*Mzumbe University in Tanzania*).

3) Interpersonal factors

a) Soft Skills of Coordinators

- i) Well-developed soft skills of coordinators are a success factor; they are essential for discussing challenging issues, providing solution-oriented approaches, embracing complexity and cater for diversity. (*MMU in Uganda*)
- ii) The key facilitating roles of the coordinators, both in the country concerned and in Flanders, and the importance of their soft skills were highlighted in many of the 8 final evaluations (*e.g. Mzumbe University and NM-AIST in Tanzania*).
- iii) It is essential that the collaboration between local and Flemish coordinators is good (and preferably excellent) and that their leadership style and skills are compatible and complement each other. Their effectiveness as a duo is fundamental.

b) Trust, Transparency, and Respect

- i) Cultivate a culture of trust, transparency, and respect, essential for collaboration. Actively listen, comprehend diverse backgrounds, and collaborate effectively (*Mzumbe University and NM-AIST in Tanzania*).
- ii) Creating space and time for teambuilding to facilitate relations between project staff and create conditions for a culture of trust and effective collaboration (*Mzumbe University in Tanzania*).

c) Effective (internal and external) communication

- i) Efficient communication, both within and outside the organization, enhances understanding, awareness, and progress tracking. (*NM-AIST in Tanzania and HU in Vietnam*)

d) Committed coordinators

- i) Stability in project and program staff, along with their commitment, fosters a culture of trust and effective collaboration (*Mzumbe University in Tanzania*).
- ii) Highly committed and supportive coordinators and project leaders was identified as a key success factor. (*NM-AIST in Tanzania*)

In conclusion, effective coordination is a multifaceted effort that requires a combination of 'hard' and 'soft' leverages; including: institutional support, transparent communication, inclusive decision-making, flexibility, a committed team with well-developed soft skills, etc. These lessons from various VLIR/IUC programmes provide a framework for optimizing coordination in similar initiatives. However, it is worth noting that VLIR-UOS already provides an enabling environment to foster effective coordination with a long implementation horizon and flexibility of instruments and procedures.

3.3 Learning question 3: How to ensure uptake of research results?

How to ensure uptake of research results or new educational practices by political and societal actors and end-users?

As explained in the inception report, this learning question focuses on checking and validating the corresponding mechanisms that were identified under the Syspons evaluation of TEAMS and SI projects (and of other relevant mechanisms).

This synthesis exercise identified, mapped and analysed: (1) pre-conditions (*such as good identification of structural barriers, response to needs, etc.*); (2) mechanisms of uptake (*such as personal interaction, choice of partners, particular modes of collaboration, training of end users, direct contact with end users, training and sensitization of researchers with regards to uptake, ...*); and (3) additional good practices and factors of success fostering effective uptake of research results.

The question of uptake is strongly related to the societal role of higher educational institutes. This role is strongly supported by the VLIR-UOS programmes. The challenges and evident limitations faced by academic institutions appeared as a key issue from the previous framework evaluations and was already partly discussed with experienced programme stakeholders. This resulted in an effort of VLIR-UOS to further explore the issue of uptake with a thematic evaluation (2019)¹⁴ and the development of a brochure on uptake (2021)¹⁵.

The 8 programmes reviewed with this final evaluation did not yet benefit from insights of the thematic evaluation nor from the support of the brochure; nonetheless they were expected to demonstrate results related to the “uptake of research results and/or new educational practices”.

The learning question thus focuses on the measures (explicit or implicit) that programme stakeholders and institutions took to ensure that intended end users (either from the university - such as research and teaching staff, either from society) effectively apply and leverage what is offered by the programme. This focus correlates with the definition from the Uptake brochure.¹⁶

Two limitations need to be underlined: the 8 programme-level evaluation reports that this synthesis draws upon, have strongly linked this learning question to the analysis of impact and the selected impact cases in each evaluation and the focus was primarily on uptake of research results, rather than educational practices or uptake within the universities (*examples of this are however described in the table below*). Given the budget of this evaluation, the number of external stakeholders interviewed was also limited (*and mainly focused on the specific impact case per programme*) thus weakening the evidence base on results of uptake.

To synthesize the findings, the evaluation team follows the framework developed by the Syspons evaluation in 2019 and thus aims to structure and understand better the choices made by the various programmes, which were documented in the evaluation reports. The Syspons framework lists (pre-) conditions for uptake and a number of mechanisms that can ensure uptake. The table below presents an overview of the measures that were documented in the 8 reports.

¹⁴ Syspons (2019) Thematic Evaluation of Departmental Projects: Creating the Conditions for Impact, page 40.

¹⁵ VLIR-UOS (2021) Creating the conditions for uptake in higher education partnerships for sustainable development.

¹⁶ This brochure defines uptake as ‘the use of research and education results of HEI by non-academic actors (or society at large: policymakers, NGOs, private sector, farmers)’ and creating the conditions for uptake as ‘all activities that facilitate and contribute to the use of research evidence or other results emanating from the work of Higher Education Institutions (HEI) by policymakers, practitioners and other development actors’.

	MMU	HUE	MzU	NM	UO	ESPOL	CTU	UCLV
Analysis of conditions for uptake by societal actors								
Good identification of structural barriers, response to needs, policy priorities, developmental relevance; absorption capacity for technical knowledge)	x	x	x	x	x	x	x	x
Mechanisms for uptake documented in the evaluation reports								
Design of research is demand driven and needs oriented	x	x	x	x	x	x	x	x
Stakeholder engagement (Research is participatory (action research), Collaboration exists between researchers and end-users.	x	x	x	x	x	x	x	x
Interaction is frequent and long term and characterised by trust and mutual respect, There are organisational linkages promoting knowledge sharing beyond the institution and personal interaction	x	x	x	x	x	x	x	x
Researcher has skills in story telling, networking and translating research results (training)	x		x	x	x	x		
Users have skills for evidence use and access (training)	x	x	x		x	x		x
Research products are targeted and accessible	x		x	x	x		x	x

Box 4 - Need for storytelling and fostering uptake.

From the review of the IUC programme at NM-AIST in Tanzania, the general perception is that researchers still needed more support and training in storytelling, networking and translating research. Also user skills for evidence use and access were limited, while the budget for training/outreach was redirected to research objectives in the two final years of the programme.

While research products were rather targeted, accessibility remained an issue. The uptake was affected by factors external to the programme although also the level of dissemination was also limited.

Analysis of context for uptake

Overall context analysis was done by all programme-level evaluations and the relevance of the programmes' focus topics and outcomes was confirmed, more in particular in relation to government policies and wider needs of envisaged target audiences.

Both evaluations in Cuba show that the VLIR-UOS programmes came in very timely, and uptake was strongly facilitated by the fact that government and many societal actors were asking for specific products or services (in health, ICT, ...) to be produced and made available in Cuba, as the blockade hampered access and import of such products.

The synthesis exercise, across the 8 assessed programmes, however reveals that more detailed analysis on structural barriers for uptake (for e.g. socio-economic obstacles for end-users, government agencies not functioning well, etc) was less prevalent in the programmes. Hypothesis on these barriers and the actual absorption capacity for new knowledge or tools were not explicitly identified in the TOCs of the programmes.

Mechanisms for uptake

Multiple mechanisms for uptake were reported upon, as initiatives within the programmes or initiatives taken by the institutions.

Clearly, all interventions in the programmes that included stakeholders from society, have executed some kind of **needs analysis**, thus (at least partially) ensuring the research design was demand-driven.

- ✓ However, not all programmes ensured this throughout the research process or the development of products and tools. For example, the evaluation report of the MMU IUC programme in Uganda – a programme with strong focus on action research and production increase in the dairy value chain) explains that needs analysis happened at the start/set-up of the research but that this alignment to stakeholder needs was not sufficiently checked during generation of the research results, a process which only involved a limited group of farmers.
- ✓ This is very different from the UO IUC case in Cuba, where more attention was paid to feedback loops with a bigger number of end-users (medical staff), of which a certain number was also actively involved in conducting the research. Similarly under the network programme in Cuba, stakeholders went to the universities looking for solutions to their problems, and they participated from the beginning in the conception / guidance of research projects (cf. impact case documenting on INRH, the Villa Clara enterprise, etc.).
- ✓ Also, the Vietnamese HU IUC's Project 4 Rural Health Care demonstrated a strong stakeholder emphasis, in this case focussing on rural communities embedded as the ultimate beneficiaries of the project. For example, Community Health Centres (CHCs) received support in terms of capacity building, thereby enabling patients to access better primary healthcare services.

Stakeholder engagement (with societal actors) was ensured in all programmes (*except for the Network programme in Vietnam*) through various ways. The modalities and approaches for such stakeholder engagement include: (1) action research is important approach used in many programmes; (2) establishing structural relations with key stakeholders and (3) regular and/or institutionally embedded interaction with government. The evaluators observed that most of the VLIR-UOS programmes assessed are working on all or several of these three types of stakeholder engagement.

With respect to action research, the practice of allocating a specific budget to field research was found to provide significant and flexible support to initiating, conceiving and conducting this type of research. This was the case in the IUC programmes of MMU in Uganda and Mzumbe University in Tanzania, where the practice is now institutionalised with a research and outreach fund. Action research allows researchers to test in a real environment and allows (directly involved) users to gain new insights, experiment with new ways of doing or tools and adopt significant change.

Several results were documented in the evaluation reports; e.g. :

- ✓ A small group of directly involved Ugandan (cow-)farmers changed their pastures and farming practices; now they grow forage to improve feeds and make their own mineral blocks (*IUC MMU Uganda*).
- ✓ Some communities in Tanzania can better monitor access to clean water (*IUC Mzumbe University Tanzania*).
- ✓ Various companies understand better the connection between the Wetlands system and the agricultural practices, small farmers involved in banana and maize cultivation show increased awareness (*NM-AIST Tanzania*). This was further supported by workshops, seminars and the distribution of brochures and guidelines, disseminating knowledge and practices in a simple, locally comprehensible manner, thus raising awareness amongst target audiences.
- ✓ There are however also some limitations to action research as programmes focus on a limited group of people (fit for the purposes of the PhD research, which is a legitimate choice) and are often not following/including a systems-based approach. As such they are limiting the action research to a

limited number of end-users, not always involving or engaging important intermediaries as would be required for upscaling of results uptake.

- ✓ This is less the case in *Cuba* where academic institutions, government and more and more private companies are involved and where the concept of open science is ensuring dissemination and uptake.
- ✓ Another example of continuous relations with a larger group of practitioners and intermediaries is the example of *Hué University* Vietnam and its network of medical staff on Family Medicine.
- ✓ *NM-AIST Tanzania* is working on a model of tech transfer (see §4.3 – box 6) that is promising in terms of more systematic engagement with societal stakeholders.
- ✓ Tech transfer was explored in *Hué university* Vietnam as well (through an Erasmus+ programme) but not yet further pursued (because of legal environment not being conducive).

However, overall, the evaluators found that academic institutions could benefit from a more systematised and university wide approach for action research. More involvement of social sciences in the set-up and evaluation would also support a more impact oriented approach as is argued in the *Cuba* reports.

Most of the institutions involved in the programmes already had **structured relations** with societal stakeholders, in some cases underpinned by explicit policies or procedures (e.g. the procedures for quality assurance on outreach services in *Mzumbe University Tanzania*, the community engagement policy in *MMU*, the tech transfer policies and guidelines in *NM-AIST Tanzania*). In the case of *MMU*, the model for community engagement is being defined through a PhD in the *IUC* programme and now needs further operationalisation.

The relations with societal stakeholders can take various forms and these were also evidenced in the evaluation reports. For example: (a) communities of practice (*such as seen in MMU on health and in Mzumbe university Tanzania on community monitoring and citizen science*), (b) internship modalities (*MMU in Uganda is experimenting with student placements to improve access of farmers to knowledge and innovations – it should be noted though that results are not clear yet as the initiative is still developing and relation development is not evident for all PhDs as it demands a high level of presence in the field and a relational attitude*); (c) the creation of (thematic) consortia (*e.g. in Ecuador*); (d) networking at political and societal level (*project 4 of IUC HU in Vietnam, using such networking to promote Primary Health Care as pivotal aspect in Rural Health Care*) and (e) networking with other organisations at regional level (*example from Ecuador, see box 1*).

The evaluations also indicate and confirm that management of multi-stakeholder partnerships is not evident for an academic institution; acknowledging it is not part of the core mandate of the institution, while academic institutions might not have sufficient legitimacy as knowledge actor in such a broader setting or lack the institutional experience in partnership coordination and management. Such partnerships also require specific resources and skills that are not necessarily present in the academic institution. A such, it was for example difficult to maintain regional platforms for dairy stakeholders by *MMU* in *Uganda* or to attract societal stakeholders to the thematic consortia in *Ecuador* and keep them on board. Overall, participation outside of academia often remains limited.

Box 5 - On uptake of new research and educational practices

Adoption and application of new elements (pedagogical approaches, research-based learning) by teaching staff in other courses was documented in the evaluation reports for the IUC-programmes of MMU and Hué University in Vietnam, the IUC of Mzumbe University in Tanzania (with respect to gender based pedagogy and blended learning), the Network programme in Ecuador, etc.

This box describes the example of Hué University in Vietnam.

The introduction of research-based learning combined with new ethical regulations for research: the uptake of research based learning by teaching staff (in other courses) and the integration of the IUC subject of family medicine into the regular medical programme of the Hué University of Medicine and Pharmacy in Vietnam were complemented by the establishment of a first ethical commission. The latter initiative, dedicated to the evaluation of animal-related experiments and research protocols, led to the creation of an ethical committee that not only assesses the ethical dimensions of such experiments but also rigorously scrutinizes manuscripts for plagiarism. Subsequently, the program's influence extended to other academic institutions across Vietnam. A workshop was co-organized with Ghent University College and Nong Lam University, featuring expertise from Utrecht University, which culminated in the drafting and adoption of ethical guidelines for experimental research protocols. As these guidelines were disseminated, they catalysed a widespread adoption of ethical standards, prompting universities and research institutes to either seek affiliation with Hué University's ethical committee or establish their own. The project's reach further extended within Hué University and all its member universities where formal regulations were enacted. These regulations require that all biological and animal research obtain ethical clearance before commencement. The main reason why this initiative has been so successful is that such ethical procedures are necessary to get research published in international peer-reviewed journals.

Direct interaction with policy makers at local and government level is quite important to generate uptake in national policies and programmes. The easiest way of doing this is to develop policy briefs and taking part in specific committees where policies and budgets are debated. The evaluation reports gave some evidence of this. For example:

- ✓ The *NM-AIST IUC programme in Tanzania* engaged in developing policy briefs and taking part in various policy development processes (e.g. National Water, Sanitation and Hygiene - WASH - strategy).
- ✓ A policy brief on health (*MMU Uganda*)
- ✓ Examples of the Network and IUC programmes in *Cuba*, where a policy recommendation on "Open Science and Open Education" was developed by the programme and used by the Ministry of Higher Education to draft their policy on the topic for the rest of the country, and academics took part in working groups and technical committees.
- ✓ Technical advice can go beyond participation in working groups as an example from Ecuador shows, where researchers from one of the programme stakeholders (UTN Ecuador) together with Master programme students from Ecuador and Belgium have conducted extensive research on the Yahuarcocha lake. These studies became available at UTN Ecuador database and informed the water management plan of the local government. The research theses have been the basis for the lagoon micro-watershed management plan of the municipality. UTN Ecuador research proved critical to help local government address knowledge gaps and monitoring capacity due to the lack of resources.
- ✓ Hué University in Vietnam invested a lot in advocacy and developed strong relationships with the Ministry of Health through consultations and participation in conferences and workshops, with success. It resulted in Family Medicine receiving a central place in national healthcare schemes and in new national and regional legislation with regard primary and rural health care.
- ✓ The example of MMU IUC in Uganda demonstrates that Flemish partners, in this case, the coordinator can play an important role in strengthening direct relations and networks with decision makers; e.g. by organising meetings with the BE embassy when in the country and requesting meetings at ministry level. It has certainly contributed to stronger relations with the Ministry of Agriculture, which has recently decided that the national Centre for Food policy will be hosted at MMU.

- ✓ Mzumbe University Tanzania developed blended Learning protocols/standards that were officially adopted by the Tanzania Commission of Universities (TCU).
- ✓ With the Fuailia Maji project, Mzumbe University Tanzania actively involved duty bearers from the start of the project. The project team also used the data from the project to advocate better access to clean water at the district level and with RUWASA (Rural Water Supply and Sanitation Agency)

Box 6 – Successful networking is key to disseminate research results

The programme stakeholders in Ecuador co-convened an international conference (2019) with external organisations which focused on implementation of innovation for sustainability in water usage in cities, industry, and agriculture.

Perspectives were shared and collaboration was encouraged among the many stakeholders who play a role in the use of water. The conference reached and connected stakeholders from : municipalities, industrial users, agriculture, policymakers, regulators, environmental and social organizations, equipment and technology suppliers, consultants, researchers and academicians, financial institutions, and underserved populations.

The conference, attended by around 300 water professionals, was the first step towards the creation of the Ecuadorian National Chapter of the IWA (International Water Association). Since then, a national network was started with 70 water professionals from Ecuador. Among other activities, IWA-Ecuador partnered with Ecuador NETWORK partners (both Ecuadorian and Flemish) in the ‘ProAgua Webinar Series’, which convened not only researchers but also private sector and government agencies representatives, contributing to expand NETWORK’s work, moving beyond academic ambitions or boundaries.

The Ecuador Network evaluation report refers to staff training in commercialization and tech transfer with training activities to support researchers from partner universities to further develop their capacities on tech transfer, for e.g. “Ideacamp 2022”, developed in collaboration with the Entrepreneurship and Innovation Center at ESPOLE Ecuador (i3Lab). The training programme aimed at providing researchers from partner universities with tools that help them develop research-based business models, prototypes and market strategies. This 3-month programme of 12 workshops held on a hybrid format involved participation of 25 researchers from the NETWORK partners but further results are not reported.

Box 7 –Increased credibility of university centre facilitates influence on policy on primary health care

The VLIR-UOS programme support for HU in Vietnam was timely; it efficiently combined and fitted into each other several initiatives that all responded to a policy strategy developed by Hué University of Medicine and Pharmacy addressing policymakers.

The **Family Medicine Centre (FMC)** played a vital role in Primary health care policy development. Because of the activities and successful results, produced by the project, it enjoys a great reputation in Vietnam and allowed FMC to be involved in preparatory policy processes and to influence policy. This is based on a strong relationship with the Ministry of Health, developed through consultations and participation in conferences and workshops (in conjunction with other important influences, such as from the Family Medicine Department of Hanoi Medical University).

This is a case of strong external coherence, steered by government policy and in support of improving public sector provision of primary health care.

Capacity building of own researchers to develop skills in story telling, networking and translating research results to stakeholder needs.

The evaluation teams found few specific activities in the programmes targeting soft skills of academics to organise stakeholders, tell stories, etc. and presume this is left to the specific competences of the individual PhD student or academic staff member.

However, the community radio approach at MMU Uganda stimulated researchers (from faculties involved in the IUC programme but also other faculties) to get acquainted with and use other formats (interviews, documentaries, ‘Questions and Answers’-programmes) to interact with the wider public, which was very much appreciated by that public and by the researchers themselves. The work with the radio is continued and institutionalised through focal points in each faculty.

Users have skills for evidence use and access to information / knowledge

To ensure this, the most common practice is providing training. For example:

- ✓ In the MMU IUC programme in Uganda, PhD researchers provided direct training to groups of farmers to present them new tools and technologies on how to feed cows.
- ✓ The Mzumbe IUC programme in Tanzania offered micro learnings (short content that learners can consult or study at their own convenience) and trainings on gender for BodaBoda drivers. These micro learnings are examples of action research being extended with some training for end-users.
- ✓ The Vietnam IUC programme directly supported medical staff in 145 health centres, which improved knowledge and skills of family medicine principles and contributed to good practices amongst practitioners, resulting in better service delivery.
- ✓ The NM-AIST IUC programme in Tanzania used the research sites owned by farmers to demonstrate and train on the impact of soil water and nutrients management towards improved yield of banana and maize.
- ✓ The Network programme in Ecuador developed and provided training for staff of water companies (6 weeks' MOOC for water operators), based on one of the new MSc courses, ensuring a more personalized offer (using data analysis to identify drinking water production operators' learning characteristics). The training in the Network programme came with funding from a private international company and reached 90 water operators. 13 public and private companies participated by allowing their employees to participate and by providing their facilities for employees to practice what they learned in the MOOC.
- ✓ The Network programme in Cuba trained the professors who then installed cloud computing services for water management at country-level. The IUC programme at UO in Cuba supported the development of the software Imagis 2.0, installed in twenty-five hospitals, with 441 specialists trained.

Research products are targeted and accessible

The measures to ensure this, are closely related to **approaches for tech transfer and commercialisation** and ample examples of such initiatives were found and documented in the programme-level evaluation reports.

In several programmes, the evaluators observed significant challenges that were not yet or only partly addressed at the time of the evaluation.

- ✓ The MMU IUC case in Uganda, shows that it is not easy to develop a concrete product for the market or end users. The experience with the development of an app for monitoring dairy farm practices and performance clarifies in particular that tweaking an existing product (from Flanders) to a user public in Uganda does not necessarily work.
- ✓ The Ecuador case also shows that usability of new technology requires careful planning and sufficient capacity building efforts. An app that allows actors in the banana production chain to interact with ESPOL Ecuador experts was developed but at the time of evaluation, usage of the app was still incipient. According to the researcher, usability of the app depended on farmers being properly trained in the use of the app. While guidelines have been provided to users to operate the app, other capacity sharing efforts were still missing.

In other programmes, the evaluators found significant progress in the field of tech transfer and commercialisation; in particular in the UO IUC programme and in the Network programme in Cuba and in NM-AIST IUC programme in Tanzania (refer also to §4.3).

Recapitulation of lessons learned on uptake of research results

The synthesis exercise yields some insights related to context, type and topic of research, and the academic institution itself.

➤ Related to the *context*

- A certain sense of urgency (such as in Cuba) and/or strong support by government (such as in Cuba and Vietnam) facilitate external coherence; thus increases the probability of effective uptake of research results.
- On the other hand, the Ecuador report underlined that societal and governmental actors often lack incentives to ask for, inform about and/or use research findings that are relevant for them as they have no tradition in working closely with universities on developing or executing policies.

➤ Related to the *research* itself

- Research projects focusing on direct solutions in response to specific (well-understood) needs of specific audiences that are easy to be implemented in the workplace and that are more technical in nature have a higher probability for uptake (in comparison with uptake of longer-term and more fundamental research).
- End-users that have little means (e.g. small scale farmers) cannot adopt research enabled solutions that fit their needs, unless they benefit from additional (medium and/or long-term) support. In other words, uptake by more vulnerable target groups requires a more multifaceted approach in which 'fit for purpose' results from needs-based research is only a component. Strategies for enhancing uptake should thus combine needs-based research with partnerships with other actors/intermediaries committed to support the weaker target groups in accessing and adopting the research-based solutions.
- Making clear choices and prioritising in research topics (e.g. *Vietnam IUC and the intention of MMU Uganda to choose one specific focus of the university, agriculture and food*) may enhance the probability of effective uptake and fit in strategies for enhancing uptake.
- Tech transfer and commercialisation require sufficient financial means, institutional support and societal support. Getting the financial means together requires a smart combination and synergy of donor programmes which is often very difficult to realise (because of conflicting timelines, diverging objectives, etc).
- Most research in the IUC programmes is related to PhD research: the trajectory has to follow certain steps and has a dynamic that is not always in phase with the needs and the rhythms of end-users. A strategy for uptake requires additional means and time.
- 'Training of trainers' (ToT) is often essential as a step toward upscaling the adoption or research results by large groups of end users. Such ToT requires a specific approach as it goes well beyond a simple training of potential users. Training of trainers approaches can significantly contribute to uptake, but they require more attention to the roles and skills of such trainer of potential end-users; e.g. from an andragogy perspective. Reviewed programmes (e.g. Uganda MMU, Tanzania NM-AIST) may claim to have organised (some) training of trainers however have not done this appropriately or sufficiently; related needs not being sufficiently met.
- Action research can bring down barriers between education/research and users but in itself cannot ensure broader uptake by societal actors: limited in time and reach, other partners are needed to design, plan for and implement the "roll out". The evaluators found that universities often implement one-off outreach activities (for ex. *Boda Boda training on gender, Tanzania Mzumbe University*) that may be successful as an initiative but that are not or weakly embedded in broader societal initiatives/projects. Uptake approaches used tend to overlook important intermediaries (that could and should ensure continued uptake). In other words, partnerships with other actors should be fostered more in the uptake strategies of the VLIR-UOS programmes and of the supported institutions.

➤ Related to the *institution*

- The lack of an explicit institution-level strategy on uptake (identifying clear methodologies, such as action research) and/or lack of alignment between programme-specific approaches and university approaches or embedded practices weakens the probability of successful uptake. (See also Box 4 below).
- This finding underlines the importance of having clear policies (*such as in NM-AIST Tanzania, under development in MMU Uganda*) which are supported by a specific dept.

The latter is also under consideration in *Vietnam Hué university*: reflection is ongoing about the creation of a department or office dedicated to knowledge and technology transfer as various examples in Flanders demonstrate.

Box 8 –Explicit strategies on uptake are important but need to be backed by university policies

In Ecuador, and the Network programme, the evaluators appreciated the upfront formulation of specific strategies to establish solid and permanent linkages with stakeholders who would be involved throughout the research process (from design, to execution, validation, and tech transfer) “to make sure that our research targets a specific demand that will assure the rapid incorporation of our results into the society” (Partner Programme Phase 2, p.57).

This approach and concept was integrated in the different projects: biodiscovery, WRM, education and outreach innovation. This included the following.

- ✓ Training to enhance demand-based research capabilities among NETWORK researchers.
- ✓ Creation of the position of “valorisation managers” to be selected within each partner university to maintain an active communication channel between academia and stakeholders.
- ✓ Creation of thematic consortia.

However, although specific measures for uptake were formulated by the programme, there was not an overall Network-level policy related to uptake, there was no explicit alignment between such network-level policy and existing strategies (if any) or practices at the level of the participating universities.

Also, there was little impetus to take action, it was difficult for the ‘valorisation managers’ (intended to function as an active communication channel between research projects and stakeholders) to position themselves and act.

Recommendations on uptake

- VLIR-UOS could not only further disseminate (e.g. link it to other initiatives on uptake from other stakeholders that are supporting university capacity) but also enhance a bit its brochure on uptake.
- ✓ The brochure would benefit from additional attention to: (a) institutional aspects/conditions in the institutions that contribute to uptake and (b) approaches and strategies for tech transfer and commercialisation.
 - ✓ The brochure supports a very pragmatic view on uptake and acknowledges there is not a single best way and that there are variable degrees of ambition, which can help future programmes to be more explicit while at the same time remaining realistic. With the brochure, VLIR-UOS acknowledges the importance of high-quality research and education and does not expect all projects to generate results in society or to focus on uptake of research results by external stakeholders. The focus of the brochure is rather on creating the conditions for uptake to happen (in the short or long-term). Depending on the topic, the context, the maturity of the partnerships, etc. the level of ambition can be different.
 - ✓ However, a reflection on uptake and a minimum strategy is needed for all projects. This can be realised by asking basic questions such as: (i) Who are the end-users, how could my results benefit (or disadvantage) them (and am I sure about what they actually need)? (ii) Which stakeholders can help or hamper this process? (iii) How can my project increase the likelihood of the results having a positive impact? (iv) What actions can we take? (v) When can I consider my actions to be successful?

- The brochure already provides an interesting distinction between 4 mechanisms and success factors.
 - ✓ These mechanisms are: (1) determining knowledge role(s), (2) developing stakeholder engagement, (3) ensuring capacity building for uptake and (4) impact oriented planning and monitoring.
 - ✓ While acknowledging that the 8 programmes reviewed did not yet benefit from this more recent VLIR-UOS brochure on uptake, the evaluators observed that these programmes already fostered uptake by engaging in (a) stakeholder engagement and (b) capacity building of researchers and stakeholders (*even though such capacity building occurred to a lesser extent*). However, the programmes might have benefited from a more explicit choice related to (i) the envisaged knowledge role(s) – *i.e. mechanism 1* – and (ii) the approaches and modalities for ensuring impact oriented planning and monitoring – *i.e. mechanism 4* –.
 - ✓ With regards to the knowledge roles, it would be good to stimulate programme stakeholders to reflect upfront about the knowledge role they want to engage in: being an information intermediary, a knowledge translator, a knowledge broker and/or innovation broker. From the synthesis, the evaluators would conclude that the two first roles, ‘information intermediary’ and ‘knowledge translator’ are the most obvious roles taken in the programmes. Once roles are defined, it makes sense to look at the roles that the different institutions / projects / teams are playing in order to align efforts.
 - ✓ Related to the 4th mechanism, the evaluations found that the first experiences with using a “Theory of Change” (ToC) and related assumptions, when planning the 2nd phase of the programmes reviewed, have raised awareness about the concept of impact. However, this is not yet fully understood by all stakeholders thus weakening ownership and the quality of M&E Excel sheets and the choice of indicators demonstrate this (most indicators related to uptake are still output rather than outcome oriented). Program M&E needs to be strengthened and enhanced with additional focus on outcomes and impact, in particular related to outreach activities and universities’ ambitions to foster / impact aspects of inclusive and sustainable development. This also includes tracking and ensuring effectiveness of (envisaged / implemented) strategies and pathways for change. VLIR-UOS could envisage including a focused pilot of such outcome tracking (with appropriate indicators and methods for information gathering) for at least one component of each new programme. This would be combined with two-yearly (or yearly if relevant) review of the corresponding envisaged pathways of change. Later on, good practices of such pilots could be bundled in a ‘brochure’ or ‘guidance’ on the topic.

4 Findings and reflection on key transversal topics

4.1 The IUC Concept

The synthesis exercise revealed a generalised appreciation of the long term institutional support concept of the IUC programmes. Unfortunately, such longer term commitments and partnerships have become very rare. Both the stakeholders consulted and the evaluators, across the 5 programme-level evaluations systematically expressed their high levels of appreciation of the longer term concept (in principle: 1 year preparation +5 years phase 1 +5 years phase 2 +1 year phase-out).

It is essential to recognize that the institutional development and empowerment of universities or higher education colleges requires such 12 years' perspective. The evaluations demonstrated that the performance of IUC programmes typically remains high also during the second phase. In all 5 cases, significant progress during the second phase was reported on all or most dimensions of institutional and organisational capacity of the supported university.

Typically all IUC partnerships provide interesting incentives for well-performing academics. But the institutional development of the supported university should also ensure sufficient incentives for sustained good performance of staff in support functions (library, IT, logistics, ...) within the university; in some cases this may be a challenge.

4.2 Gender equality and Leave No One Behind

The topics related to "gender equality" and "leaving no one behind" are already somehow addressed under §3.1 when discussing findings in response to learning question 1.

Overall, when designing the programmes reviewed, there was no explicit analysis of relevance and/or of expected outcomes for women or other specific (disadvantaged) target groups. Overall, specific pathways of change were hardly developed and the concept / paradigm of analysing expected outcomes and effectiveness, in a disaggregated manner, for different stakeholder groups was not used. As mentioned above, it should be acknowledged that at the time this was not explicit requirement or expectation set forth by VLIR-UOS

Nonetheless, in several programmes, there has been attention for gender disaggregation when setting target numbers for PhD candidates, target groups for action research, etc. Overall, the design of new VLIR-UOS programmes as well as the institutional policies of the supported institutions could enhance their focus on inclusion and diversity.

Box 9 – More explicit recruitment and support strategies are needed to enhance PhD candidate diversity

The evaluators of the *IUC of NM-AIST* in Tanzania recommended for the institution to develop and adopt a balanced recruitment strategy that combines open admissions with targeted internal selections to enhance PhD candidate diversity and capacity building. Concurrently, this strategy should integrate initiatives to enhance female participation in SETI fields (Science, Technology, Engineering and Innovation). These could include mentorship programs led by accomplished female scientists, designed to support and boost the success of women in SETI; outreach initiatives targeting primary and secondary schools to spark interest in science among young girls; and collaborations with NGOs dedicated to promoting gender diversity in the sciences.

Box 10 – A diversified approach to integrate gender in the programme enables to work on different levels (institutional, behavioural)

Whilst the IUC programme at **Mzumbe University (Tanzania)** had an obvious focus on **gender equality**, with a goal to increase the participation of women and especially increase their capacity in academia, it also addressed the behavioural aspects of gender equity. Projects one (1) and three (3) delved deeper into these behavioural issues, with the aim of fostering a more inclusive and equitable environment within the university and its surrounding communities. Gender mainstreaming activities included: awareness campaigns, assessment of gender sensitive teaching and learning materials, development of a training manual for gender sensitive training, workshops for academic staff, training in gender responsiveness in teaching and learning, development of guidelines for provision of gender sensitive innovative methodologies, outreach service to increase enrolment of girls in higher learning institutions.

4.3 Technology Transfer

In particular the review of 3 IUC programmes (*at HU in Vietnam, at UO in Cuba - cf. box 7 - and at NM-AIST in Tanzania*), yield interesting experiences and lessons learned on Technology Transfer, including intellectual property, incubation, etc.

Box 11 – Technology transfer experiences call for more attention to explicit strategies to support societal uptake of research results

Background. It is important to mention that HU (from the IUC in Vietnam) was involved in an Erasmus+ project (2016-2018) that focused on technology transfer, namely 'The Vietnam-European Knowledge and Technology Transfer Education Consortium' (VETEC). This project contributed to creating awareness in the field of technology transfer and learning about different models of KTT (Knowledge and Technology transfer). But during this evaluation of the IUC programme, the evaluators found no concrete follow-up to this earlier project. Several interviewees informed the evaluators that the legal framework did not allow them to undertake initiatives as envisaged under the VETEC project.

Lessons learned.

- a) Future projects / initiatives focussing on KTT (in Vietnam) should more explicitly and effectively involve national authorities and policy makers as central stakeholders.
- b) If "uptake" is to be a central theme or recurring ambition, then it is worth considering explicit consideration of developing or including **Knowledge and Technology Transfer (KTT) modalities/mechanism** in each IUC programme. It would be good to include the approach to KTT as a cross-cutting theme in the programmes.
- c) The reason why it is important to explicitly include this theme (as a component of institutional development ambitions of an IUC programme) is that academics are primarily interested in upgrading their teaching and research assignments. Societal uptake is often an element that comes in as a last resort. Moreover, the review shows that academics do not always have the necessary skills to shape uptake. Support in that area from experts who can translate research results into societal impact can then be very valuable.
- d) Another lesson learned of the evaluation of the IUC at HU in Vietnam is that KTT deserves an integral approach. This means that many different stakeholders should be involved in a KTT approach. Obviously, university executives and key stakeholders should be given an important place in the development of KTT. In addition, it is also important to involve stakeholders from the policy level as well as from business and society.

Box 12 Establishment of Technology Transfer structures at the university linked to robust outreach and industry linkage operations

In the second phase of the **NM-AIST** IUC in Tanzania, an additional project was initiated extending the institutional capacity strengthening to Technology Transfer and Outreach. The IUC programme has played a pivotal role and was successful in the development of a Technology Park at NM-AIST. This includes the establishment of an Incubation Centre, Technology Transfer Office (TTO), and the Commercialization Office; completed with institutional policies, guidelines, dedicated staff, and physical infrastructure, all facilitated by the project's support and capacity-building efforts. These components, which are essential for the transfer of technology and innovations to industry and for fostering economic growth and sustainability, are now in initial stages of effective embedment into the University's structure.

This project successfully established a Technology Transfer Office (TTO) at NM-AIST

The project facilitated the establishment of an intellectual property (IP) management and commercialization system at NM-AIST, including the development of guidelines and the setup and staffing of an IP Management office and incubation centre.

NM-AIST has developed and launched new research units focusing on entrepreneurship and innovation within its Business School (BUSH). This initiative includes the design and implementation of relevant Master's and PhD programs, anticipated to foster connections between scientific research and commercialization.

The self-assessment report provided limited evidence of research outcomes resulting from this project. The effectiveness of the TTO office and incubation and commercialization office hinges on NM-AIST's commitment and investment in supporting incubation and commercialization projects. The prospects for a fully functional system are contingent upon robust outreach and industry linkage operations, which are anticipated to be strengthened in the near future with support from the World Bank-funded HEET project and CREATES.

Technology innovations in general, however, still require additional resources to bring them to the market.

The anticipated impact is to ensure that knowledge, innovation, and technology effectively reach society and the market, creating meaningful impacts. While evidence of success in this area is still emerging, with more work required, notable achievements include the incubation of 11 projects, management of 10 intellectual property rights, and the creation of four spinoffs as of April 2023.

However, significant evidence of products or innovations being tested in the market or commercialized is not yet available. The program has successfully established a platform for the protection and potential commercialization of knowledge and innovation generated by the University.

Overall recommendation: The forthcoming phase, which requires further investment, should focus on attracting funding and support for the actual commercialization of these innovations.

Recommendation on Technology Transfer Process Integration: VLIR-UOS, Flemish Partners, and NM-AIST should ensure that technology transfer is integrated into program design right from the beginning, to ensure research outputs lead to marketable products and societal benefits. There are many reasons why this early integration is crucial, including: allowing for appropriate allocation of resources; encouraging researchers to consider the market potential and applicability of their (targeted / effective) research outcomes throughout the research process; speeding up the process of bringing innovations to market (and hence, accelerating societal and economic impact); and facilitating access to funding thanks to a clear path to commercialization.

Scaling up innovation, entrepreneurial capabilities, and commercialization: NM-AIST needs to develop and implement a clear strategy with specific milestone/targets for using its new capabilities and expertise to turn innovative ideas and research into practical, market-ready solutions. This implies further enhancing and consolidating the Tech Transfer mechanisms and capacities built under the VLIR IUC program.

East African Universities Coalition: As a follow-up step, VLIR-UOS, NM-AIST, and Flemish partner institutions are encouraged to form a coalition of East African universities, including VLIR-UOS program participants, to foster knowledge exchange, technology transfer, and commercialization.

Technology Transfer Process Integration: VLIR-UOS, Flemish Partners, and NM-AIST should embed technology transfer in program design from the start to ensure research leads to marketable products and societal benefits.

Box 13 - Tech transfer efforts resulted in re-investments in research

UO IUC Cuba), together with Universidad de Guantanamo, officially opened an interface company: CINTRO S.A., for the commercialisation of products and research results, thus belonging to the public sector. This was part of a State policy to make science more sustainable. As in 2022, there were 4 Science and Technology enterprises in Cuba that function as interphase between the universities and other entities with innovation as a goal, and 2 Scientific-Technological Parks. Some of the results obtained with the IUC programme, in collaboration with the Flemish partners, have been traded all around the country through CINTRO S.A. CINTRO reinvests 20% of the profit in research.

Remaining challenges are about enhancing the sustainability of created institutional capacity through decentralised and diversified sources of funding: the generation of revenues from patents and training services is expected to substantially contribute to the financial stability of the university. The activities of the former KTTO were transferred to CINTRO, facilitating the transfer of scientific and technical results to the industry through contracts with several tech companies.

Conclusions

One of the insights resulting from this synthesis exercise is that aspects of technology transfer (TT), potentially embedded in a broader KTT concept, combined with intellectual property management and incubation, should be a component of each IUC programme.

While some argue that this is particularly essential from the second phase of an IUC programme onwards, the experience of the IUC programme at NM-AIST Tanzania shows that just starting in the 2nd phase does not allow sufficient time for consolidating the started process. Therefore, one could argue that it is beneficial to already start this process, at the latest, halfway the 1st phase of the IUC programme.

All-over, related to the above, it remains essential to fully adopt an open “partnership paradigm”, continuously exploring opportunities for synergies with potential partners; with the universities / higher education colleges focussing on their comparative advantages in such partnerships.

Further evaluators’ reflection on incubation and entrepreneurship development and KTT.

A form of “incubation”, to foster viable business development, is certainly complementary with the TT / KTT efforts and IP management found in IUC and Network programmes. But such incubation should best be coupled with broader initiatives towards ‘on campus’ development of entrepreneurship skills and experiences.

This should not be limited to pure “for profit” business development but could also encompass social / impact entrepreneurship. For example, upscaling research results in agriculture with potential positive impact for small-scale farmers and farm workers often requires innovative, impact-driven, business concepts for new generations of intermediaries / service providers committed to operate and thrive within transparent, fair and sustainable agricultural value chains.

4.4 Ideas for post-IUC initiatives

Ideas for post-IUC initiatives, including network-type initiatives and fostering South-South cooperation in other forms than 10-year network Programme.

This synthesis exercise yielded the following lessons learned on network initiatives that might inspire universities and partnerships that are concluding an IUC.

- a) Added value of in-country collaboration and network approaches, supporting collaboration among local universities is in itself a major contribution to the development of the research capacity of a country. Indeed, structured and results-oriented collaboration allows to: (a) develop new skills, (b) identify new research areas, (c) increase the publication rate, (d) make an efficient use of resources (including labs and their equipment), and (e) access new and/or more funding.
- b) While IUC programmes can help strengthen the research capacity of single institutions, further development of joint academic programmes can stimulate and attract new talent that would continue feeding the research ecosystem in a given country, thus making research strengthening more

effective and sustainable. One could think about IUC as a more 'individual institution focused' effort compared to targeted academic programmes with a broader scope including multiple institutions in the country, or in a group of neighbouring countries.

- c) The development of joint research-based MsC, combining on and offline teaching, offers a strong opportunity to intertwine universities, potentially bringing other advantages, such as: reduced costs, collaborative culture, more effective use of labs, stronger position to ask for research grants, support influx of students to research, take on board weaker universities, opportunities for diversity/inclusion for students in remote areas. But sustainability of such initiatives is more difficult to achieve (because of the low number of paying students and dependency on VLIR-UOS funding) and thus they might need further scaling up in the region to support sustainability. Joint MsC also need sufficient investment in qualitative online learning (finding a good balance between online and physical teaching to reduce the costs related to mobility of students and staff).
- d) To fully enjoy the added value of collaboration, either within the existing Network structure or with other partners, universities need to invest in the revision of their administrative processes allowing for sufficient flexibility. Networking requires more flexible models and administrative systems and there might be a difference here between public and private universities. Without a strong funding (partner), universities, more in particular public universities, might therefore not choose to network/set up a result-driven network structure. The IUC experience proved to be important in the success of the network programmes. So, attaching the requirement to have one or two stronger partners (preferably having experience with IUC programmes) can be a factor of success, when considering future support to in-country or multi-country / regional collaboration.
- e) The network evaluations seem to suggest that prior network experience and background increase the probability of being successful in research calls. In Ecuador, the increased research capacity and the collaborative approach to research resulted in a higher rate of success in research calls, as the joint approach revealed to be attractive to research grant makers.
- f) Network programmes are very valuable for universities that are less strong/a bit left behind but can play an important role (e.g. because of their geographical location). The involvement of these partners in the network also helps provide access to high quality education to students outside the main districts, thus supporting diversity, equity and inclusion.

Some particular ideas to valorise potential from universities in the partner countries were advanced in the IUC programme evaluation reports for NM-AIST in Tanzania.

- 1) Recommendation on "post IUC initiatives" resulting from the evaluation of the IUC programme at NM-AIST in Tanzania.
 - a) To capitalize on the advancements made in the IUC programmes, VLIR-UOS, post-IUC partner universities in the South and Flemish partner institutions could consider establishing a coalition to collaborate and establish regional peer learning partnerships on particular topics.
 - b) For example, the idea was advanced to envisage such a of partnership of East African (post-IUC) universities to enhance knowledge exchange and peer learning with respect to facilitating technology transfer and encourage commercialization of research results across the participating institutions.
- 2) Another recommendation (also formulated in the evaluation report for the IUC programme at NM-AIST in Tanzania) is about enhanced recognition of Southern Partner Contributions by VLIR-UOS Northern Institutions and in South-South partnerships.
 - a) To ensure equitable recognition of collaborative efforts, VLIR-UOS and Northern Institutions should establish transparent mechanisms that explicitly acknowledge the contributions of Southern institutions and researchers.
 - b) The evaluators also advise that Northern students conducting research in Southern institutions (under the program umbrella) be formally registered as visiting scholars. This registration not

only enriches the experience for all involved but also strengthens the academic integrity and collaborative spirit of the partnership.

- c) Additionally, it is essential to implement a system that fairly allocates research credits, recognizing the input of Southern researchers and students in the research achievements of their Northern counterparts. Such a system would promote a balanced and just academic collaboration, ensuring that all contributions are appropriately valued and credited. The Program Management Manual's authorship policy should be reviewed and potentially revised by all stakeholders to ensure it remains effective and relevant.

5 Recapitulation of key conclusions and recommendations

- 1) When supporting the development of **joint, hybrid and research-based, MSc programmes** at country or regional level (involving different HEI in the Global South and Flemish HEI), ensure to involve one or two universities with international/IUC experience. In order to overcome recurring practical limitations, ensure a component on online learning (*supported by adapted e-pedagogy of high quality*). Inspire and support involved institutions to analyse and review their administrative processes and develop knowhow on effective engagement with private sector (*in order to ensure financial sustainability by securing more scholarships for MSc students*). This also implies attention for Higher Education policy (at national or regional level) that is conducive for the sustainability of such MSc programmes, including for potential professional training spin offs and effective engagement of private sector through and transparent partnerships or other appropriate mechanisms.
- 2) **Uptake of research results** may be fostered combining complementary leverages and success factors.
 - a) Ensure an explicit uptake/stakeholder engagement strategy, at the level of the institutions and the projects, to support the efforts by partners and, consequently, the uptake of research by societal stakeholders. This includes fostering awareness of the various knowledge roles that may be developed.
 - b) Having a specific and dedicated team or department to drive the implementation of such strategy further enhances the probability of successful uptake.
 - c) The VLIR-UOS uptake brochure offers good guidelines for the development of policy influence/stakeholder engagement plans (including stakeholders' mappings) to support research uptake at the national, regional, and local level. The brochure could be further developed. One issue deserving more attention is encouraging and supporting partners to keep better track of the progress towards their objectives to account for the impact of the programme. This might necessitate more collaboration with partners/faculties from social sciences.
 - d) A shared sense of urgency and/or strong support by government facilitates external coherence and increases the probability of effective uptake.
 - e) Research projects focusing on direct solutions in response to specific (well-understood) needs have a higher change for uptake.
 - f) Uptake by more vulnerable target groups also requires partnerships with intermediaries committed to support the weaker target groups in accessing and adopting the research-based solutions.
 - g) Tech transfer and commercialisation require sufficient financial means, institutional support, strategy development and societal support.
 - h) Action research can bring down barriers between education/research and users but in itself cannot ensure broader uptake by societal actors
 - i) Direct interaction with policy makers at local and government level is quite important to generate uptake in national policies and programmes. The easiest way of doing this is to develop policy briefs and taking part in specific committees where policies and budgets are debated.

Thus, it is recommended to adopt an ecosystem approach to further support research uptake in diverse contexts, by supporting both research supply and demand. It typically means to focus the efforts not only in strengthening universities (those who 'supply' the research) but also in strengthening the capacity of other societal stakeholders to 'demand' research, as well as the synergies between all stakeholders in the system. This does not mean that such capacity building of societal stakeholders should be included in VLIR-UOS' own core business; but the programme design and partnership arrangements shall ensure that this dimension is also taken care of.

- 3) Continue to invest in **capacity for collaboration** amongst universities.
 - a) In the end the important thing is to support effective and results-driven collaboration/networking among local/regional universities. The Network programme (and the specific networks formed with it) is just a vehicle. Alternatives to comprehensive and long-term Network programmes may be further tested and implemented.
 - b) For example, VLIR-UOS could support **connections and partnerships** between VLIR-UOS partners **in different Southern countries** so they can explore collaborative opportunities and support innovative and promising regional and global research initiatives. This would allow well with VLIR-UOS' ambition to connect, learn and inspire; among others by connecting between VLIR-UOS projects, with other educational/research actions in the broader international higher education and science contexts, etc.
 - c) The synthesis exercise yielded several related lessons learned and ideas on network initiatives (cf. §4.4).

- 4) On **inclusivity**:
 - a) It is recommended for the (supported) universities to establish more explicit policies and procedures to ensure broader diversity and inclusion; this may be piloted in the VLIR-UOS programmes and their activities.

Attention for diversity in the university and considering diversity and inclusion in teaching and research is much broader than just the support to the PhD trajectory, it might be interesting for VLIR-UOS to stimulate (potential) programme stakeholders to explore the development of an institution and/or programme wide approach that goes beyond ensuring equal numbers in participation or access.
 - b) VLIR-UOS could ask (candidate) partners submitting a proposal (for a new programme / project) to identify specific hindrances for access to post graduate studies faced by specific groups of people in the context of the country (gender and intersectionality) and invite them to think over a strategy and/or a concrete approach to address such challenges.
 - c) Consider also "pre-PhD programmes" - Because of the challenges to foster enhanced inclusion and diversity while upholding strategic choices with respect to high-quality and selecting the most suitable PhD candidates (*that are able to support the achievement of the ambitions set for the VLIR-UOS programmes*), it is recommended that VLIR-UOS stimulates local institutions to think from the start about a kind of pre-PhD preparation programme for potential candidates from disadvantaged groups. One shall ensure that such initiatives are based on proper analysis of hurdles and needs of potentially disadvantaged / underrepresented groups. Investment in good research-based MSc programmes, and supporting access to students from disadvantaged groups, is also a way to invest in the creation of a bigger and more diversified pool of competent and well-prepared PhD candidates to select from. Such strategies could also include targeted support at master programme level in view of identification of pre-doctoral candidates and opportunities for candidates from disadvantaged / underrepresented groups to prepare for next steps towards a doctoral programme training. These ideas may be further enriched with lessons learned from the Network Ethiopia and their IQ Gear initiative (not part of this evaluation) and or from VLIR-UOS' ambitions in the Accelerate programme.
 - d) Complaints mechanisms - Because there are no explicit measures nor strategies on diversity and inclusion, it is recommended to VLIR-UOS to install mechanisms allowing PhD students to share specific obstacles or complaints and through which solutions might be sought with stakeholders involved.
 - e) Broader support system - Because needs for women (and other potentially disadvantaged groups) cannot all be properly addressed by the academic supervision; it is recommended to VLIR-UOS to stimulate potential programme stakeholders to think about a broader support system including role models and specific support measures that recognize the significance of

female role models in academia and that encourage the inclusion of successful female academics as (peer) mentors and advisors. Such approaches may be inspired by the experiences documented in the evaluation reports for the IUC Mzumbe Tanzania the IUC NM-AIST Tanzania. evaluation). Such specific female role models and/or mentoring may be conceived and operationalized in parallel to the academic supervision as to inspire and guide aspiring female PhD candidates and PhD students. The relevance of a peer support system is well-supported and validated by existing academic literature; as was argued in the NM-AIST Tanzania evaluation report.

- 5) **Effective coordination of a VLIR-UOS programme** is a multifaceted effort that requires a combination of 'hard' and 'soft' leverages; including: institutional support, transparent communication, inclusive decision-making, flexibility, a committed team with well-developed soft skills, etc. These lessons from various VLIR/IUC programmes provide a framework for optimizing coordination in similar initiatives. However, it is worth noting that VLIR-UOS already provides an enabling environment to foster effective coordination with a long implementation horizon and flexibility of instruments and procedures.
- 6) The synthesis exercise revealed a **generalised appreciation of the long-term institutional support concept of the IUC programmes**. The evaluations demonstrated that the performance of IUC programmes typically remains high also during the second phase. In all 5 cases, significant progress during the second phase was reported on all or most dimensions of institutional and organisational capacity of the supported university (cf. the 5 core capabilities model used). This justifies a strong recommendation for VLIR-UOS to maintain its long-term IUC programme concept.
- 7) Aspects of **technology transfer (TT)**, potentially embedded in a broader KTT concept, combined with intellectual property management and incubation, **should be a component of each IUC programme**. A form of "incubation", to foster viable business development, is certainly complementary with the TT / KTT efforts and IP management; but such incubation should best be coupled with broader initiatives towards 'on campus' development of entrepreneurship skills and experiences; this should also encompass social / impact entrepreneurship. All-over, it remains essential to fully adopt an open "partnership paradigm".

The ambition of fostering technology transfer should be explicit from the initial design of an IUC programme. During the first phase this should be explicitly embedded within the broader ambition of enhancing the institutional and organisational factors that are conducive for uptake of research and academic results. Already during the 1st phase, promoting KTT should be a transversal effort, while building on progress in the 1st phase, a specific TT project should be envisaged in the second phase of an IUC programme.

VLIR-UOS supports partnerships
between universities and university colleges
in Flanders and the South
looking for innovative responses
to global and local challenges

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