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The opinions expressed in this document represent the authors' points of view and do not necessarily reflect the position of the PFS Foreign Affairs, Foreign Trade and Development Cooperation.

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Abbreviations and acronyms

AAU	Addis Ababa University
AMU	Arba Minch University
BTC	Belgian Technical Cooperation
CDI	Capacity Development Index
CP	Cooperation Programme
IUC	Institutional University Cooperation
MTR	Mid-term Review
OECD-DAC	Organisation for Economic Co-operation and Development - Development Assistance Committee
OI	Own Initiatives
PCM	Project Cycle Management
SEO	Special Evaluation Office
ToC	Theory of Change
UNDP	United Nations Development Programme
VLIR	Vlaamse Interuniversitaire Raad

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1. Introduction

The Special Evaluation Office of the Belgian Development Cooperation (SEO) commissioned Syspons and Nuffic to conduct the "Impact evaluation of the Belgian university development cooperation". The objectives of the evaluation are formative and summative. With regard to the former, the evaluation should examine the evaluability of the impact of Belgian university cooperation. More specifically, the evaluation should analyse "to what extent and on the basis of which methodological approach the impact of the Belgian university cooperation is evaluable."¹ Concerning the latter, the impact of the Belgian university cooperation should be evaluated on the basis of a sample of selected interventions. Hereby it should be analysed whether, to what extent and under what conditions impacts were achieved.

The scope of the evaluation covers long-term partnerships connected with interventions between January 2000 and December 2014 and scholarships that were granted for the period between January 2008 and December 2016. The interventions to be examined are located in the following countries: Vietnam (VLIR-UOS and ARES), Benin (ARES) and Ethiopia (VLIR-UOS).

In this evaluation Syspons and Nuffic were asked to deliver country reports for each of the four field missions, which took place in Benin, Ethiopia and Vietnam. The country reports should thereby assess the impact of the interventions that were selected in the previous fact-finding missions and are documented in the study report submitted by Syspons and Nuffic. Therefore, this country report analyses the impact of the selected VLIR-UOS' OI/TEAM Projects with Addis Ababa University and Arba Minch University in Ethiopia as well as impacts from the individual scholarship survey for VLIR-UOS scholarships in Ethiopia. It also describes the chosen methodological approach and the lessons learned regarding the methodology used.

The country report is structured as follows:

- **Chapter 2** gives a description of the analysed OI/TEAM projects in Ethiopia.
- **Chapter 3** describes the general situation in Ethiopia at the beginning of both OI/TEAM projects.
- **Chapter 4** presents the field mission's results with regard to the OI/TEAM project at Addis Ababa University.
- **Chapter 5** presents the field mission's results with regard to the OI/TEAM project at Arba Minch University.
- **Chapter 6** draws conclusions on the basis of the results presented.
- **Chapter 7** introduces lessons learned with regard to the used methodology used.
- The **annex** includes the bibliography, the list of interviews conducted, the description of the applied evaluation design, the Theory of Change developed for the OI/TEAM projects, the assessment grid as well as the used data collection instruments used.

¹ Federal Public Service Foreign Affairs, Foreign Trade and Development Cooperation. Special Evaluation Office of the Belgian Development Cooperation (2016). Open call to tender for the impact evaluation of the Belgian university development cooperation. Special Specifications. Ref. S4/2016/01, p. 24

2. The analysed OI/TEAM projects in Ethiopia at a glance

2.1 The OI/TEAM project with Addis Ababa University

2.1.1 Theory of Change

The OI/TEAM project "Control of equine trypanosomosis (*Trypanosoma equiperdum* and *T. evansi*) in the Arse and Bale highlands of Ethiopia" was implemented from 2006 to 2010 at the Faculty of Veterinary Medicine, Dept. of Pathology and Parasitology, at the AAU. The applying Flemish institute was the Catholic University Leuven (Faculty of Bioscience Engineering, Department of Biosystems) with the involvement of the Institute of Tropical Medicine Antwerp (Department of Parasitology, Unit Parasite Diagnostics). The total budget of the project amounted to 309.458 Euros.

To achieve a common understanding of the VLIR-UOS project objectives, a Theory of Change (ToC) was developed in a participatory process with the Belgian promoters and discussed in the interviews during the field mission. The ToC served as a basis for the evaluation of the VLIR-UOS project and consists of different inter-connected and independent components:

- **Inputs / activities:** "the financial, human, and material resources used for the development intervention" (defined according to the OECD-DAC, 2010)²
- **Outputs:** "the products, capital goods and services which result from a development intervention" (defined according to the OECD-DAC, 2010)
- **Outcomes:** "the direct benefits on the level of the beneficiaries realised through the intervention objectives" (defined according to the European Commission (Directorate-general Development Cooperation and Humanitarian Aid, 2015, p. 6))
- **Impacts:** "positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended" (defined according to the OECD-DAC, 2010)

In the following, the ToC is presented. A graphic presentation of the ToC can be found in the annex.

In the field of research and organisational capacities the intended overall **impact** of the project was to strengthen the capacity for diagnosis and control of equine trypanosomosis (dourine and surra) in Ethiopia. More specifically, the project intended to apply new diagnostics and improve control measures for equine trypanosomosis at the Faculty of Veterinary Medicine and in the Regional Laboratory of Assela. Alongside this, the intended long-term development impact was to improve the economic situation of small stakeholders (especially farmers) by reducing losses in the equine population. This was intended to be achieved by improving the health of the equine population via new control strategies and establishing a network for dourine and surra prophylaxis.

² According to the Strategic Note on Results in Development Cooperation of the DG Ontwikkelingssamenwerking en Humanitaire Hulp, the DGD defines inputs, outputs and impacts in conformity with the OECD-DAC definition, but outcomes pursuant to the definition of the European Commission.

To achieve its impact, the project strived at the **outcome** level to make sensitive and fast diagnostic tests (serological and parasitological tests and Polymerase Chain Reaction based methods) for equine trypanosomosis available, define the enzootic situation of equine trypanosomosis in the focused regions of Ethiopia, and make appropriate drug schedules for equine trypanosomosis available. These outcomes were planned to be achieved by developing knowledge and experience on testing equine trypanosomosis in the Dept. of Pathology and Parasitology, by determining the prevalence of the disease in the focused region and by identifying simple and robust treatment schedules for equines (**outputs**).

In the field of organisational capacities the project planned to capacitate the Ethiopian partner to apply the newly generated knowledge and infrastructure (**outcomes**) by appropriately equipping the laboratory of the Faculty of Veterinary Medicine and having better trained staff members in Trypanosomosis diagnosis (**output**). Moreover, the project intended to create a network for informing the local stakeholders about diagnosis and treatment possibilities (**outcome**) by putting in place diagnostic technology and guidelines for the local veterinary health services and running information campaigns to raise awareness for improved diagnosis and treatment of their animals.

In terms of inputs that were needed to achieve the outputs, outcomes and impacts, financial means, human resources and expertise were provided by VLIR-UOS, K.U. Leuven University and Addis Ababa University.

2.1.2 Target groups

The VLIR-UOS project involved different stakeholders that assumed distinct roles and responsibilities within the implementation process. The stakeholders are consequently distinguishable by their functions and are – for the purpose of this evaluation – defined as follows:

- The **responsible organisations** bear the institutional responsibility for the implementation of the VLIR-UOS project.
- **Indirect beneficiaries** are persons within the responsible organisations that benefit from the project's activities, but serve as mediators to achieve the overall objectives and impacts of the project; e.g., they receive scholarships or trainings to improve capacities of direct beneficiaries or to achieve the intended impact on the level of the final beneficiaries.
- **Direct beneficiaries** are organisations who should primarily benefit from the project's results.
- **Final beneficiaries** are persons outside the responsible organisations who should benefit from the project's results.

By using these definitions, the following responsible organisations and beneficiaries can be distinguished in this VLIR-UOS project:

- The Belgian universities and Addis Ababa University are **responsible organisations** for the implementation of the VLIR-UOS project. They both shared accountability vis-à-vis VLIR-UOS.
- The **indirect beneficiaries** are the employees of Addis Ababa University who receive scholarships and trainings under the VLIR-UOS project in order to improve the capacities of AAU or to achieve impacts on the level of the farmers in the Arse-Bale region.
- The **direct beneficiary** within the AAU is the Dept. of Pathology and Parasitology within the Faculty of Veterinary Medicine, as its capacities should be increased through the VLIR-UOS project.

- The **final beneficiaries** are the farmers in the Arse-Bale region, as their socio-economical situation should be improved through the funded research project. In addition, the local veterinary clinics in the Arse-Bale region are final beneficiaries, as they should benefit from the developed solutions by offering more effective ways of treating the infected equine population in their region.

2.2 The OI/TEAM project with Arba Minch University

2.2.1 Theory of Change

The OI/TEAM project "Land and water research for sustainable livelihood in the south Ethiopian Rift Valle" was implemented from 2011 to 2016 at the College of Natural Sciences at Arba Minch University (AMU). The applying Flemish institution was K.U.Leuven (Department of Earth and Environmental Sciences, Division of Soil and Water Management) with the involvement of the University of Antwerp (Department of Biology). The total budget of the project amounted to 299.863 Euros.

As with the first OI/TEAM project described above, a Theory of Change was developed in a participatory process with the Belgian promoters and discussed in the interviews during the field mission to serve as a basis for the evaluation of the VLIR-UOS project.

In terms of **impacts**, the project's overall academic objective was to strengthen AMU as a national public institution for research, training and service to society. For this, the project was intended to strengthen the recently established 'Research Centre for Biodiversity and Nature Conservation' and to capacitate a critical interdisciplinary group of highly qualified and motivated researchers at AMU to make them capable of analysing and addressing land and water ecological and management problems. Moreover, the long term developmental objective was to strengthen sustainable land and water management in the southern Ethiopian Rift Valley to the benefit of local fishermen, farmers and pastoralists, and to the nation.

To achieve these long-term goals, the project planned to ensure that Ethiopian partners have at their disposal and use a comprehensive geographical database for research purposes (**outcome**). For this, the project characterised aquatic, wetland and terrestrial biodiversity as well as local natural resources perceptions, practices and management (land, pasture, water, fisheries) and sought to integrate this data into a comprehensive geographical database (**outputs**).

Moreover, the project intended to develop spatial decision support tools for better land-use and conservation planning and make these available to decision makers (**outcome**). These tools were to be developed based on the newly created database and a mathematical model for identifying "optimal" land-use scenarios (**output**).

Finally, the project sought to increase organisational capacities and knowledge of university staff (**outcome**) by training them and research students in biodiversity assessment, participatory natural resources management appraisal, land-use and conservation planning, geographic information systems and spatial decision support systems (**output**).

In terms of inputs that were needed to achieve the outputs, outcomes and impacts, financial means, human resources and expertise were provided by VLIR-UOS, K.U. Leuven University, Antwerp University and Arba Minch University.

2.2.2 Target groups

Parallel to the VLIR-UOS project above, different stakeholders that assumed distinct roles and responsibilities within the implementation process were involved (see definition in chapter 2.1.2 above):

- The Belgian universities and Arba Minch University are **responsible organisations** for the implementation of the VLIR-UOS project. They both shared accountability vis-à-vis VLIR-UOS.
- The **indirect beneficiaries** are the employees of Arba Minch University who received scholarships and trainings under the VLIR-UOS project in order to improve the capacities of AMU or to achieve impacts on the level of the fishermen, farmers and pastoralists in the south Ethiopian Rift Valley.
- The **direct beneficiary** within AMU is the Department of Biology within the College of Natural Science, as its capacities should be increased through the VLIR-UOS project.
- The **final beneficiaries** are the fishermen, farmers and pastoralists in the south Ethiopian Rift Valley, as their socio-economic situation should be improved through the funded research project. In addition, the Nechisar National Park Management can be defined as final beneficiaries as they should benefit from the developed solutions (e.g., spatial decision tool).

3. General situation analysis in Ethiopia at the beginning of OI/TEAM projects

With about 102 million people, Ethiopia is the second most populous country in Africa after Nigeria. Although Ethiopia is the fastest growing economy in the region, it also counts as one of the poorest. Nevertheless, Ethiopia's economy has experienced strong growth averaging 10.5% a year from 2005/06 to 2015/16. This is almost double the regional average of 5.4%. Most of the economic growth stems from the expansion of services and agriculture, with only modest manufacturing growth. Private consumption and public investment have been identified as drivers behind the demand-side growth. By 2025, Ethiopia's government strives to reach a lower-middle-income status (Worldbank 2017).

The Human Development Index (HDI) shows improvements between 2000 (around 0,29 index points) and 2014 (0,448). Overall however, the HDI 2016 ranks Ethiopia at 174 out of 187 countries , indicating low levels of life expectancy, education and per capita income (UNDP 2018). Notwithstanding the overall low HDI rank, economic growth brought with it positive trends in poverty reduction. In 2000, around 55% of Ethiopians lived in extreme poverty. By 2011 this figure was around 34%.

The successes in poverty reduction and economic growth have been linked to a strong government commitment reflected in two Growth and Transformation Plans (GTP). The government is currently implementing the 2nd phase of its Growth and Transformation Plan (GTP II), which will run until 2019/20. It aims to continue working on infrastructure through public investment projects and to transform Ethiopia into a manufacturing hub. Growth targets are an annual average GDP growth of 11%; in line with manufacturing strategy, it also hopes the industrial sector will grow by an average of 20%, creating jobs.

Parallel to the economic transformation plan, the Ethiopian government also strives to improve the higher education sector, which is split up into diploma (one to two years), undergraduate (four to five years) and postgraduate level (two to three years) (UNESCO, 2010/11, pp.6-7). In general, education expenditure by the Ethiopian government has been constantly growing in recent years, resulting in a share of 27% of the national budget in 2013 (UNESCO, 2013, online). There has also been a noticeable increase in terms of the total amount of education expenditure and as percentage of Ethiopia's GDP (Index Mundi, 2012; UNICEF, 2008). However, external donors still contributed up to 20% of the government's education budget in 2010 (VLIR-UOS, 2010, p. 8).

The Education Sector Development Programmes (ESDP) of the Ethiopian Government, which target the overall system of higher education, including institutions as well as the academic programmes, are the basis for reform and development in the area of higher education (SNNPR, 2003; Saint, 2004, p.85). Since 1997, the ESDPs have been continuously updated: the most recent one being ESDP V, which covers the years 2015/16 until 2019/20 (MoE, 2015). The ESDPs' strategy included an intensive expansion policy, increasing the number of public universities from two in 2000 to 31 today (MoE, 2011b, online). Furthermore, the establishment of private Higher Education Institutions was encouraged, leading to the establishment of more than 60 private Higher Education Institutions so far (Ministry of Education Ethiopia, 2011c, online). The number of students rose from 30.000 enrolled in public HEIs in 1997 to 375.000 studying at public and private Higher Education Institutions in 2010 (Yizengaw, 2005, 1;

VLIR-UOS, 2010, pp. 10-11). Moreover, new degree courses were introduced to respond to anticipated labour market needs (World Bank, 2003, p. vi).

Although the reform agenda led to measurable successes, the most noticeable challenge was to achieve the objectives of expansion of the higher education sector while at the same time enhancing the quality of education (Saint, 2004, p. 106). An enormous need for staff upgrading at universities was identified as a consequence of the increased number of higher university institutions, degree programmes and student numbers (Saint, 2004, 93-94). As a consequence, three agencies were established to enhance the quality of higher education: The Higher Education Relevance and Quality Agency (HERQA), the Higher Education Strategic Centre (HESC), and the National Pedagogical Resource Centre (NPRC) (Saint, 2004, 89/107).

The Ethiopian reform efforts in the education sector are accompanied by measures and policies in the field of science and technology, which are linked to the goal of economic growth and development. In terms of science and technology, Ethiopia has been steering its development through a National Science, Technology and Innovation Policy. The policy was ratified in 2012 and in general terms aims at increasing the national capabilities to learn, adapt and utilise technologies and creating national innovation systems. Critical issues identified encompass – among others – technology transfer, human resource development, research, universities, financing and incentive schemes (Republic of Ethiopia 2012). The Ethiopian government's Higher Education Proclamation³ stresses that research should be focused on knowledge and technology transfer that is consistent with the country's priority needs. In line with this, the Ethiopian government acknowledges that research has to be promoted and has to be a central objective of higher education institutions. In addition, the proclamation includes that "undertaking and encouraging relevant studies, research and community service in national and local priority areas and disseminating the findings as well as undertaking, as may be necessary, joint academic and research projects with national and foreign institutions or research centers, are responsibilities of higher education institutions" (Mamo et al 2014).

³ HEP 605/2009

4. Results of the field mission to Addis Ababa University

4.1 Situation of the Department of Pathology and Parasitology and the Faculty of Veterinary Science of Addis Ababa University around 2006

Addis Ababa University (AAU) was established in 1950 and is the oldest and the largest higher learning and research institution in Ethiopia. AAU is considered to be the leading centre in teaching-learning, research and community services. Currently, AAU has 48,673 students (33,940 undergraduate, 13,000 Master's and 1733 PhD students) and 6,043 staff (2,408 academics and 3,635 support staff). The University counts 14 campuses and implements 70 undergraduate and 293 graduate programmes (72 PhD and 221 Masters). AAU is structured along 10 colleges (Addis Ababa University 2018), one of which is the College of Veterinary Medicine and Agriculture that was established in 2012/13 (Addis Ababa University 2018b).

While the College of Veterinary Medicine and Agriculture was established recently, the **Faculty of Veterinary Medicine** was founded in 1979. The faculty started offering a graduate programme in Tropical Veterinary Epidemiology in collaboration with the Freie University of Berlin, Germany, in 1996, which closed in 2002. The faculty then developed further between 2004 and 2006 by launching eight MSc Programmes and one BSc Programme in Veterinary Laboratory Technology. In 2009 the faculty launched four PhD programmes (Veterinary Parasitology, Veterinary Public Health, Veterinary Obstetrics and Gynecology and Animal Health and Production) (idem).⁴

In 2006, the **Department of Pathology and Parasitology** was one out of five science departments within the Faculty of Veterinary Medicine. The other four departments were the Department of Biomedical Sciences, Clinical Studies, Animal Production Studies and Veterinary Microbiology Immunology.

According to the interviewees⁵ the **general mission and vision** of the Department of Pathology and Parasitology is directly derived from the mandate of the College of Veterinary Medicine and Agriculture, which is revised every five years in accordance with the five year strategy plan of Addis Ababa University. This five-year strategies at the university level are a compulsory requirement that all Ethiopian universities need to accomplish in accordance with the objectives of the five-year national Growth and Transformation Plan of the national government. Among others – the current and past strategic plans of the College/Faculty of Veterinary Medicine and Agriculture emphasise three core missions: teaching, problem-solving research and community service (College of Veterinary Medicine and Agriculture 2015). In line with this, the Department of Pathology and Parasitology strives to educate high quality professionals, become a nationally and internationally recognised research institution as well as provide and train veterinarians and related professionals with knowledge and skills (Addis Ababa University 2018c).

⁴ As well as interviews with faculty staff.

⁵ The relevant faculty strategy for 2006 was not available anymore to the interviewees and therefore could not be analysed, but information was reconstructed through the proposals document and the interviews.

The baseline **research capacities** found at the Department of Pathology and Parasitology in 2006 were described as low, which is indicated by only one staff member holding a PhD-degree. The department focused on teaching at BSc. level. Research was only partly conducted at the MSc level programmes that were established around 2005. Furthermore, the entire faculty offered two MSc. programmes that were not specifically attached to a certain department. Hence, no MSc. programme existed at department level in 2006. Nevertheless, in 2006 the Department of Pathology and Parasitology was already conducting research on diseases caused by parasites, including trypanosomiasis, which was the disease focused on by the VLIR-UOS project. One year before the start of the VLIR-UOS project, Addis Ababa University funded a one-year research project on dourine (an equine disease caused by *Typanosoma*). The research results coming out of the research activities of the Department of Pathology and Parasitology were described as relevant by the interviewees. However, it was emphasised that the data gathered through the research projects funded by national sources were not robust enough to be published on an international level.

The missing robustness of data was attributed to the research budget coming from national sources, which was described as existent but very low. As research budgets were not allocated at a department level, no concrete research budget could be delivered by the interviewees as a baseline for 2006. However, the entire faculty budget in 2006 amounted to five million Ethiopian Birr overall (460.000 Euros, including salaries and research funds), hence indicating the overall low funding opportunities that existed for conducting quality research at the faculty level.⁶ Outside the department level, the faculties at AAU competed for small research grants by the university's Research and Publication. The funds were coming from the Ethio-Swedish Development Cooperation Research Fund (SIDA-SAREC) and the maximum amount that faculties were able to acquire for a research project amounted to 50.000 Birr (in 2006 that amount was equivalent to approx. 4.750 Euros).⁷ For example, the one-year research project on dourine mentioned above had a grant of 48.000 Ethiopian Birr (approx. 4.550 Euros) granted to faculty staff.

Another source of research funds for the department were research grants for completion of MSc programmes provided by the Ethiopian government directly to individual students. In 2006 a MSc. student received 7.000 Ethiopian Birr (approx. 665 Euros) to fund the research needed to complete the Master-Thesis. No grants were available for PhD-students, as no PhD programme existed at the faculty level.

Regarding **research and organisational capacities**, in 2006 the Department of Pathology and Parasitology employed eleven staff members with academic qualifications (excluding technicians) involved in teaching and research (eight assistant professors and three assistance lecturers). One assistant professor had a PhD-Degree, seven had a MSc. and three a DVM-degree (Doctor of Veterinary Medicine). In 2006 research infrastructure was almost not available at the faculty level. The infrastructure consisted of three laboratories (Veterinary Parasitology Laboratory, the Veterinary Pathology Laboratory, and the Veterinary Clinical Pathology Laboratory) that were equipped and used for teaching purposes. Hence, before the VLIR-UOS project laboratories and equipment available to the Department staff allowed only for basic parasitological and serological tests. No research laboratory or equivalent equipment for conducting advanced serological, parasitological and molecular research was available in 2006, thus limiting the training and research possibilities of the personnel.

⁶ In Ethiopia the overall budget allocation for higher education institutions is defined by the central government (Ministry of Finance and Economic Development) and is later approved by the parliament. In preparation for the public budget allocation, all higher education institutions prepare an annual budget at faculty level that outlines the needed budget for the coming year. The faculties submit their budget allocation request to the university level, which in turn compiles the budget requests and send them to the Ministry of Finance and Economic Development. The ministry eventually evaluates and allocates the amount, which in general terms, is lower than the requested amount, according to the interviewees.

⁷ Exchange rate EUR-ETB in January 1st 2006: 1 EUR - 10.53 ETB. Source: fxtop.com (accessed 03.02.2018).

Offering **community and extension services** has been part of the mission of the Faculty of Veterinary Medicine and the Department of Pathology and Parasitology since its foundation. In 2006, the capacities to conduct extension services with regards to trypanosomosis was described as mostly lacking. While the department had already established close contacts with the main stakeholders in the region concerned with this disease (e.g., Regional Veterinary Lab), knowledge and services on accurate diagnosis, characterisation and appropriate treatment was missing. This situation limited the services that could be provided to the relevant stakeholders. Most knowledge created by 2006 concerned the magnitude of the disease and the provision of trypanocidal drugs with limited efficacy.

4.2 Relevance of the OI/TEAM project with the Faculty of Veterinary Medicine

The criteria of relevance refers to the *raison-d'être* of any given programme or project. Its analysis renders insights into whether a project will be or is doing the right thing. Therefore, the question of whether a project is relevant is also relevant for the measurement of impact of this particular project. It is assumed that relevant projects have a higher chance of delivering impact, as they address existing needs and thus generate ownership among the target group. Hence, when analysing the relevance of the OI/TEAM project with the Department of Pathology and Parasitology, it is necessary to study whether the project was aligned to national policies and strategies, addressed the needs of the faculty and/or department as well as the needs of its indirect and final beneficiaries.

4.2.1 Analysis of the relevance of the project

At the time of the project's inception, equine trypanosomosis was not a topic of national or regional priority. Although the disease existed in Ethiopia and in the project's intervention region, only a limited number of activities had been carried out, mostly focusing on mapping the spread of the disease to support control efforts. According to the interviewees, before the OI/TEAM project started, the Ethiopian government thought the disease was almost absent from the intervention area. Based on this perception, support in terms of counteracting drugs were not sent to the local clinics. However, as shown by a study from the Department of Pathology and Parasitology conducted previous to the project (and later validated by the OI/TEAM project's fact-finding mission), the disease was prevalent in the intervention area. The misinformation was traced back to a lack of knowledge about the disease at the level of local clinics, veterinarians and farmers who only perceived and treated the symptoms without understanding the underlying disease. Therefore, the interviewees both from the university and from the Regional Veterinary Laboratory affirmed that the OI/TEAM project addressed an existing gap and need for action as the disease was prevalent in the intervention areas and was affecting equine health and as a consequence impacting on the economical situation of farmers.

At the university level, the project addressed existing needs of the Department of Pathology and Parasitology and the Faculty of Veterinary Medicine in all three dimensions of research, organisational development and community services. As described in the baseline chapter, all three capabilities were weak or lacking in 2006 at the department level. At the same time, the faculty strategy was very ambitious in terms of its goals demanding "excellence" in all three areas. Interviewees from the department emphasised the perceived gap between the university strategy's demanding goals and the resources available to achieve them. No own strategy at department level existed at that time (or nowadays), as the departments at the faculty embrace the strategy at faculty level and give inputs to this strategy through the participation of its members in the strategy development process. The project was therefore - according to the interview partners at the university - in line with the broader institutional strategies and priorities, which are outlined in the five year strategy of the faculty that makes emphasises

(among other topics) the capacity building of staff, internationalisation, research and publications as well as acquisition of research funds.

The project focus itself however did not emerge as a top-down process, but was initiated as a bottom-up process based on the individual interests of the local (co-) and his Belgian partner. The contact between the Ethiopian and the Belgian partners was established during the Ethiopian local promotor's visit to Belgium, when researching for his Master thesis. His research abroad was necessary, as the laboratories at the Faculty of Veterinary Medicine were not equipped to conduct the analysis needed (molecular biology equipment). Moreover, the research stay abroad was driven by the need to receive quality academic backstopping. Hence, from an institutional point of view, no specific priority focus existed on the topic of equine trypanosomosis at that time. However, research interest on the topic existed on the level of the Ethiopian partner, who wrote his Master thesis on this topic and of his supervising Ethiopian professor, who encouraged his topic selection.

The research concept and project design was eventually the result of a joint effort by the Ethiopian and Belgian partners and was based on the results of a field mission conducted by both parties in Ethiopia as a key step towards writing the project proposal to VLIR-UOS. Both parties perceived their inputs as being taken into account as there was a joined process of data gathering and analysis as well as proposal writing. This included visits to the main project stakeholders, e.g., the Regional Laboratory Service and the farmers (final beneficiaries) attending local clinics in the intervention area. The main stakeholders participated through workshops, interviews and surveys in the proposal development process.

4.2.2 Assessment of the relevance of the project by the evaluation team

Based on these findings the evaluation team concludes that the OI/TEAM project was a relevant intervention that addressed pertinent academic needs at the Department of Pathology and Parasitology and development needs in Arsi-Bale region.

With regards to the academic needs, it was validated during the evaluation mission that the Department of Pathology and Parasitology did not have equipment and specialised personnel able to conduct high quality research on equine diseases prevalent in the intervention region (of which equine trypanosomosis is one). As a consequence, its community service activities were also limited, which indicates the gap between the vision and mission of the department and the resources (e.g., in terms of infrastructure, knowledge and staff qualification) available to live up to the faculty's expectations. Therefore, the projects fit into the existing strategy and supported its goal achievement.

In terms of development needs, the project addressed an existing problem in the intervention area of the Arsi-Bale region. While the disease of equine trypanosomosis existed in the intervention area, the lack of knowledge at the level of local clinics, the Regional Veterinary Laboratory and the farmers resulted in a lack of diagnosis and wrong treatment schedules, thus making the efforts to improve the health of the equine population suffering from trypanosomosis ineffective. The evaluation team therefore concludes that the idea of raising awareness about the disease among the stakeholders and combining it with research measures to improve the comprehension of the disease was relevant in terms of development needs in the Arsi-Bale region.

4.3 Effectiveness and impact of the OI/TEAM project

Insights on the effectiveness and impact of the OI/TEAM project with the Department of Pathology and Parasitology are of central importance to VLIR-UOS and SEO. While the criterion effectiveness captures to what extent the project's objectives on the outcome level have been achieved and what mechanisms facilitate or impede the achievement of objectives, the criterion impact investigates to what extent mid-term to long-term effects resulted out of these achieved objectives. As mentioned in chapter 2.1, the

project – broadly speaking – tries to strengthen the research capacities and to some extent the organisational and extension capacities on outcome level to improve the academic capabilities to cope with equine dourine and to improve the socio-economic conditions of the final beneficiaries (equine holders, farmers) in the Arsi-Bale region in the long-run.

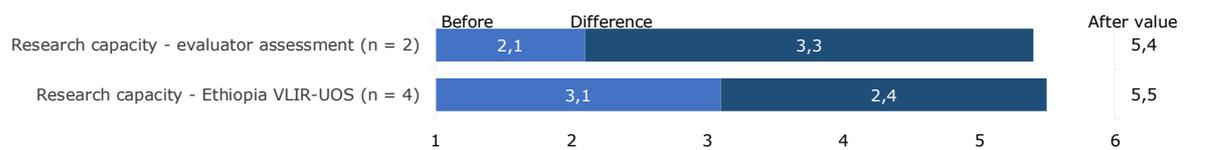
The analysis of effects and impacts on the Department of Pathology and Parasitology included the capacity development assessment of the Department of Clinical Studies. The latter served as a comparison group, as it is also located within the Faculty of Veterinary Medicine and had similar capacities back in 2006. Based on the comparison a counterfactual analysis was conducted at the organisational level to identify the intervention’s attribution to the observed change.

4.3.1 Analysis of effects on research capacity

In the first field – research capacity – the OI/TEAM project aimed at strengthening the research capacity for diagnosis and control of equine trypanosomosis (dourine and surra) at the Department of Pathology and Parasitology and the Faculty of Veterinary Medicine (*impact*) through staff development, research activities and an upgrade of the research infrastructure (*outcome*).

According to the conducted pen-and-paper survey the research capacity of the Department of Pathology and Parasitology increased considerably due to the activities conducted in the OI/TEAM project. While the Belgian and Ethiopian respondents see an increase of 2.4, the evaluators could observe an increase of 3.3. While both assessments are similar in terms of the “after the project value”, the baseline values differ to a certain extent.

Figure 11: Changes in the research capacity



Source: Syspons and Nuffic 2018

The increase in the research capacity of the Department of Pathology and Parasitology can be foremost explained – according to all interviewed persons – by the establishment of a new research laboratory and the academic staff qualification (one PhD, one MSc). Although the number of scholarships seems low at first glance, the interviewees recalled that at the time the project started only one staff member out of eleven at the department was a PhD holder (9%). Overall, the Department of Pathology and Parasitology had eleven academic staff members back in 2006 and has maintained this number until 2015. The qualification profile however has improved considerably to five academic staff members holding a PhD degree (45,5%) nowadays.

In comparison, the Department of Clinical Studies had three staff members holding a PhD back in 2006 and a smaller number of overall academic personnel (nine academic staff members). Thus, one third of the academic personnel had a PhD degree in 2006. At the same time, this number grew further in time. Nowadays, 13 academic staff members work at the Department of Clinical Studies, of which four are PhD holders (31%). Thus, the staff development at the Department of Clinical Studies evolved in term of absolute numbers (from nine to 13) and maintained similar levels of staff qualification at PhD level (aprox one third). The increase in staff quantity and qualification contributed to the nation-, university- and faculty-wide efforts to improve the situation of human resources in higher education institutions in the last years, according to the interviewees. In this line, also the staff development at the Department of Pathology and Parasitology was linked by the interviewees to these efforts as a contributing factor.

Figure 22: Changes in the qualification level of staff

Year	2006	2010	2018
Department of Pathology and Parasitology			
Teaching & research staff	11	11	11
With PhD	1	1	5
% of staff with PhD	9%	9%	45%
With MSc.	7	7	6
% of staff with MSc.	64%	64%	55%
Department of Clinical Studies			
Teaching & research staff	9	11	13
With PhD	3	4	4
% of staff with PhD	33%	36%	31%
With MSc.	6	7	8
% of staff with MSc.	67%	64%	62%

Source: Faculty of Veterinary Medicine 2018

Next to the scholarships the OI/TEAM project also implemented a short-term training for three local staff members (technicians from the university as well as from the Regional Veterinary Laboratory) aiming at developing their capacities on the use of equipment and diagnostic techniques. According to the interviewed stakeholders at the university and the Regional Veterinary Laboratory these trainings improved the research and diagnostic capacities of the involved technicians, who were able to teach and supervise the use of research equipment to - among others - MSc. and PhD students.

According to the interviewees, the OI/TEAM project also contributed to an increase in research output in forms of publications. Before the OI/TEAM project, the department produced national publications (nine publications as yearly average between 2004 and 2006) and to a lesser extent international publications (six publications as yearly average between 2004 and 2006). By 2010/2011, this number increased to an average of twelve national and thirteen international publications. Personnel from the department indicate that twelve publications were produced during the OI/TEAM project between 2006 and 2010, hence contributing to the increased number of publications. Moreover, the data delivered by the department show that numbers have increased further. In 2015, the number of national publications has risen to 40 and in terms of international publications to 25.

According to the interviewees, the Department of Clinical Studies had similar numbers in terms of national and international publications in 2006. On average, seven national and four international publications were published between 2004 and 2006 by personnel at the Department of Clinical Studies. On average, this number grew by 2010/2011 to eight national and eight international publications. Hence, while the number of national publications remained similar, the number of international publications increased. However, in both cases, the publication output remained below the output from the Department of Pathology and Parasitology. This is also the case for the publication output in 2015 (12 national and 11 international publication).

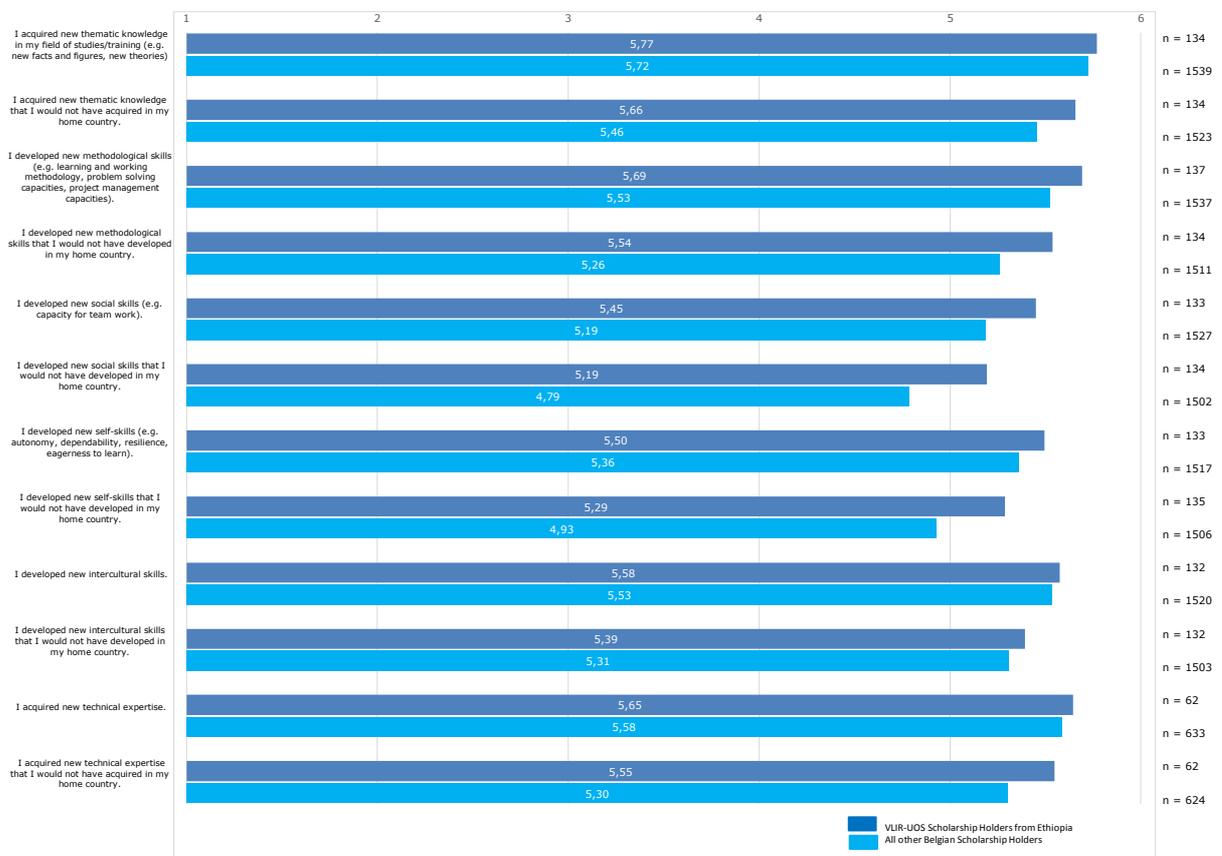
The interviewees from the faculty and the Department of Clinical Studies suggested that the lower performance in publishing is strongly linked with lower availability of research funding at the disposal of its research staff. In this regard, it was also referred to the main laboratories for Clinical Studies (Veterinary Teaching Hospital, Veterinary Obstetrics and Genecology Lab, Veterinary Surgery Room), which are mainly used for teaching and only to a certain extent for research. According to the interviewees, these laboratories are not sufficiently equipped for quality research. Moreover, although the post-graduate research laboratory (which was first established by the OI/TEAM project and then further developed through the VLIR-UOS follow-up projects) is accessible to researchers from

the Department of Clinical Studies, interviewees noted that there is insufficient funding available to pay for the necessary research material, such as chemicals.

Furthermore, with regard to the PhD-scholarship holder at the Department of Pathology and Parasitology, the skill increase and the increase in publications also fostered his career development at the university. After becoming head of the Department of Pathology and Parasitology, he was promoted to Associate Dean for Post Graduate Programmes. Moreover, after his PhD he was promoted to associate professor and could soon be promoted to full professorship. The MSc. scholar also experienced benefits from the scholarship, as he eventually was able to accomplish his PhD and is currently working as associate Dean for Undergraduate Programmes.

In terms of increased competencies and improved career development, the results from the OI/TEAM project can be compared to the results obtained by the analysis of the effects of individual scholarships. Individual scholarship holders from Ethiopia answered in the implemented online survey that they had experienced thematic, social and methodological skill increases due to the scholarship (see figure 6).

Figure 33: Increases in competencies for individual scholarship holders



Source: Syspons and Nuffic 2018

When asked for the time it took individual scholarship holders to find a job after graduation, the survey results show that it took them 1.3 months. Also the other Belgian scholarship holders indicate to have had a short gap of 2.3 month between the end of their scholarship and entering a job. In the qualitative interviews with the individual scholarship holders in Ethiopia, it was indicated that there wasn't actually a time gap, as they were received back at their former place of work immediately after returning. Integrated scholarship holders also stated to have had a job, as they returned to their employers.

At the same time the individual scholarship holders from Ethiopia experienced a medium increase in their decision-making power⁸. Those that changed their jobs after their graduation exhibited an increase of 2.7 while the others, who returned to their old job, had an increase of 2.4. In comparison other Ethiopian scholarship holders experienced a decision-making power increase of 3.2 when having changed their employment and of 2.9 if they stayed in their former occupation. In this regard, it seems plausible to assume that the individual scholarship holders in Ethiopia did not experience the same enhanced career development as the integrated scholarship holders.

An unintended impact in the field of research capacity development was the attraction of further research funding from abroad. All interviewees agreed that the OI/TEAM project on equine disease and its perceived success opened the door for the two follow-up TEAM projects, through which the Faculty of Veterinary Medicine was supported in terms of research, organisational and extension capacities. Under the TEAM project "Promotion of the PhD program in Veterinary Public Health at the Faculty of Veterinary Medicine" (2010-2015) and the TEAM project "Trypanozoma equiperdum- venereal pathogenity and transmission" (2013-2018) further research equipment (added to the molecular laboratory established by the OI/TEAM project under scrutiny) and scholarships were offered. Additionally, the interviewees emphasised the contribution of the OI/TEAM project on equine disease in being able to attract an investment coming from GALVMed, which is an international company aiming at improving the livelihoods of resource-poor livestock keepers by facilitating provision of animal health tools. GALVMed was searching for a suitable location for establishing an experimental house for treatment and testing of drugs. According to the university staff, the organisation favoured the Faculty of Veterinary Medicine due to the existence of a well equipped molecular laboratory, staff qualification and profile as the organisation is – among others – engaged in researching trypanosomiasis, which was the focus of the OI/TEAM project.

In comparison hereto, the Department of Clinical Studies did not dispose of external research funding from abroad in 2006 and this situation has not changed yet. According to the interviewees, until now, the Department of Clinical Studies has not been the main recipient of external research funding and only was able to benefit from a small one-year project provided by the Swedish International Development Agency focusing on rendering teaching support. Moreover, the Department of Clinical Studies benefited from external support, when this support was received at faculty level (e.g., a second TEAM project that supported the establishment of PhD-programmes at the Faculty of Veterinary Medicine). According to the interviewees, most donor funding programmes ask for experience in handling external funds and managing international programmes, which the staff at the Department of Clinical Studies does not have, hence making it more difficult to compete for donor funding.

4.3.2 Analysis of effects on external stakeholders and final beneficiaries

The OI/TEAM project was not only used to enhance the capabilities at university level, but also to create new knowledge and to develop new technologies (e.g. diagnostic tests) in the field of veterinary medicine (*outcome*), that eventually could be taken up by early adopters (Regional Veterinary Laboratory, local veterinary clinics, equine holders) in order to improve equine health and by consequence the economic situation of equine holders (*impact*).

With regards to the Regional Veterinary Laboratory and the local veterinary clinics the interviewees stated that both benefited through the awareness and training activities as well as through the provision of tools (e.g., guidelines and diagnostic tools). As interviewees stressed, the tools were developed and distributed according to plan by the OI/TEAM project. The planned activities to ensure awareness creation and develop knowledge on dourine through trainings were also conducted. Interviewees accordingly

⁸ Based on the collected data in the online survey Syspons and Nuffic calculated a decision making power index on the basis of the respondents' answers regarding their financial, personnel, operational or strategic responsibilities as well as the size of their employer's organisation.

indicated that benefits were received while the OI/TEAM project was running. At the same time however, the interviewees also mentioned that staff turnover at the level of the local clinics and the Regional Veterinary Laboratory is a major challenge that weakens their capabilities and negatively affects the institutional memory. Hence, interviewees signalled that capabilities that were gained through the OI/TEAM project (e.g., related to the research findings and trainings received) were difficult to sustain. Furthermore, according to interviewees from the Regional Veterinary Laboratory and the Oromia Livestock Development Agency, capabilities at local clinics are affected by the ability to use and practice diagnosis and treatment for equine trypanosomosis. The former indicated that in the past four years, no outbreaks of equine trypanosomosis was reported in the intervention areas of the OI/TEAM project (only individual cases), thus additionally affecting institutional memory and capacity on the diseases diagnosis and treatment in the long-term.

Concerning the final beneficiaries, it has to be stated that the effects on them could only be assessed through data gathered in interviews with university staff and external institutional stakeholders of the project. A direct involvement of farmers that had received treatment of their horses during the OI/TEAM projects lifetime was hindered due to (a) difficulties in contacting and mobilising them and (b) because of security concerns in the intervention region raised by the Ethiopian interview partners.

Based on the interviews, equine holders benefited directly from the OI/TEAM project mainly through two different aspects. First, the OI/TEAM project conducted awareness activities that included final beneficiaries (e.g., when these approached the local veterinary clinics) and improved their ability to perceive symptoms of the disease and implement control measures (e.g., castration) to ensure affected equines are not able to spread the disease. Second, the OI/TEAM project also offered equine holders visiting the local clinics diagnosis and later treatment of their equines by giving away effective drugs. Also, equine holders benefited from better trained local veterinarians and animal health specialist (e.g., DMV personnel at the local clinics) who received training from the OI/TEAM project.

However, as the interviewees also acknowledged, the benefits were mainly delivered during the implementation of the project and progressively vanished after the project ended. On the one hand, the equine drug that was found to be the only one having a sustainable effect (with no relapses of infected equines) is not available in Ethiopia and as a consequence at the local clinics. The drug is not bought by the Ethiopian authorities to be distributed in affected areas. The interviewees linked this to the relatively high prices of the (French) drug in comparison to other drugs from China and India. These however have - according the funded research - only limited effect and horses relapse over time, which is a complaint often heard from equine holders using these drugs. Moreover, interviewees regretted the missing sales representation of the producing French company in Ethiopia. During the project the drug was imported and paid for with project funds. Thus, during the project implementation, equine holders benefited from these most effective drugs being applied by the OI/TEAM project. On the other hand, staff turnover and the currently low relevance of the disease in the intervention region negatively affects the capabilities of the local clinics (e.g., diagnostic tools developed by the OI/TEAM project not available).

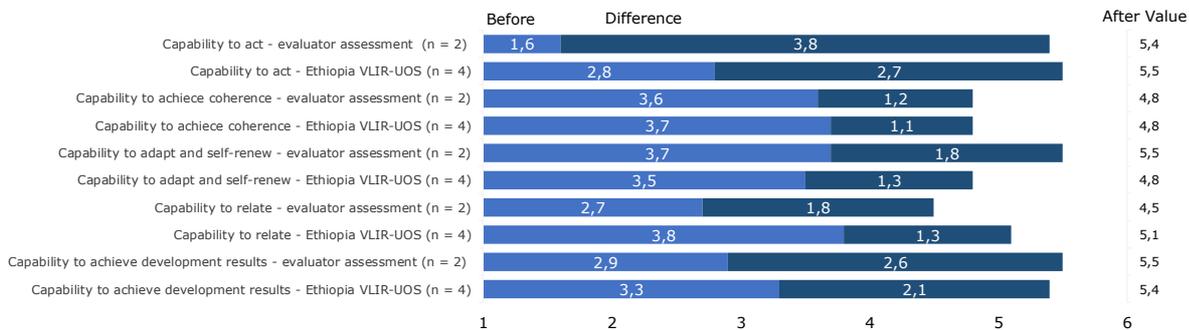
4.3.2 Analysis of effects on organisational and extension capacities

To improve the organisational capacity and extension capacity of the department and the faculty in the long term (*impact*) the OI/TEAM project aimed at increasing the Ethiopian partner's application of new knowledge and infrastructure and running information campaigns to raise awareness for improved diagnosis and treatment of equines (*outcome*).⁹

⁹ Details on the definition and operationalisation of the capabilities can be found in the annex A.3 of this report

In this regard the implemented pen-and-paper survey shows an improvement in all five capabilities in the view of the respondents as well as the evaluators due to the implemented activities under the OI/TEAM project (see figure 7).

Figure 44: Changes in the organisational and extension capacity



Source: Syspons and Nuffic 2018

The **capability to act** and the **capability to achieve development results** have been rated by the survey respondents and the evaluators as the capabilities that have been developed the most through the OI/TEAM project. While the capability to act experienced an increase of 2.7 and 3.8 respectively, the capability to achieve development results was perceived to have advanced by 2.1 and 2.6 points respectively. This can be explained on the one hand by the project's activities in upgrading infrastructure and the investment in the qualification of human resources. On the other hand related aspects, especially the ability to attract funding (e.g., VLIR-UOS projects and GALVMed) also contribute to this perceived increase in capabilities. In line with this are the contributions in terms of publications that were given by the OI/TEAM projects and that helped increase the capability to achieve development results. Overall, interviewees linked these increased capabilities to a improved reputation of the department, which was also reflected in faculty staff acknowledging the capacity development of the department.

Moreover, the respondents and evaluators also perceived changes regarding the capability to relate (+1.3 / +1.8) and the capability to adapt (+1.3 / +1.8). With regard to the **capability to relate** the interviewees emphasised the importance of the OI/TEAM project in terms of creating awareness of the disease through the interaction with the local veterinary clinics, veterinarians, farmers and the Regional Veterinary Laboratory. Moreover, it was indicated that these activities were an important contribution to the strengthening of faculties networks in the Arsi-Bale region. In this regard, the mere opportunity and ability to offer services to external stakeholders that were not available prior to the OI/TEAM project was interpreted as a major contribution to strengthening the extension capacities. On the one hand the OI/TEAM project carried out several outreach activities, among them an information campaign that included a publication in a local newspaper as well as workshops and trainings for staff coming from the local veterinary clinics and veterinarians from the region. Furthermore, the OI/TEAM project also developed guidelines and a diagnostic tool, which the department shared with its external stakeholders (e.g., local veterinary clinics).

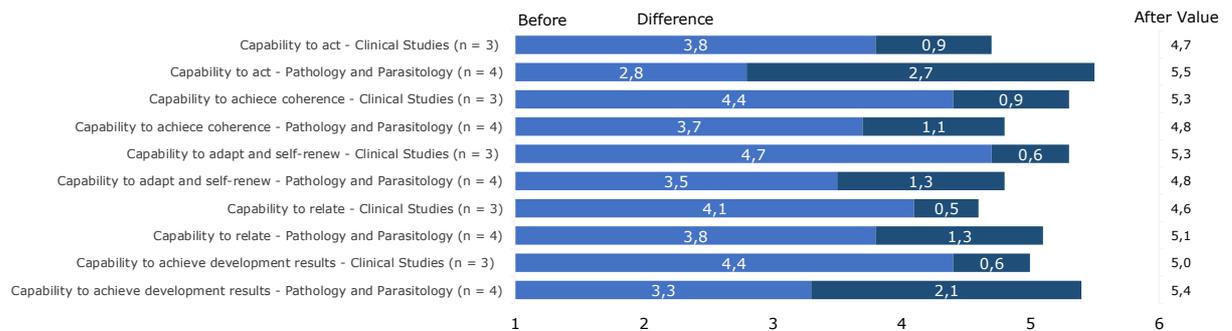
Notwithstanding the positive perception of the development of the capabilities to relate, the implementation of the evaluation mission also made evident that networks of the Department of Pathology and Parasitology are strongly dependent on personal relations, e.g. from the former Ethiopian co-promotor and (the retired) senior technician from the Regional Veterinary Laboratory. The project itself supported the improvement of the relationship by providing the funds necessary to engage in joint activities between the involved stakeholders on a regular basis. However, after the project ended and the funding options for the extension activities closed, the intensity of interaction again dropped, although not as far as to the status it had before the OI/TEAM project.

In terms of the department's **capability to adapt** to changing circumstances, the respondents also indicate an improvement caused by the OI/TEAM project. According to

the interviews conducted however, this link is comparatively weak. The interviewees indicated that the improvements in the capability to adapt are linked to the skills development and professionalisation of staff members experienced in the context of the integrated scholarships and their positions thereafter. At the same time however, the interviewees also outlined existing deficiencies in the university management system, e.g. hierarchical structures and politicisation). Moreover, also the **capability to achieve coherence** was assessed positively by the respondents and the evaluators (+1.1 / +1.2) although its improvement was minor compared to the other capabilities. Based on the interviews conducted with the department staff, this is mainly due to a perceived increased consistency between the department's capabilities to act and to achieve development results and the expectations and goals outlined in the faculty's strategy.

To implement a counterfactual approach on the organisational level as in the previous chapter, the observed changes in terms of capabilities at the Department of Pathology and Parasitology were compared to the changes experienced by the Department of Clinical Studies. Compared to this, the respondents addressing the development of the **Department of Clinical Studies** perceive lesser changes in almost all aspects (capability to achieve coherence: +0,9; capability to act: +0,9; capability to adapt: +0,6; capability to achieve development results: +0,6; capability to relate: +0,5). At the same time the survey indicates that respondents assess the capabilities of the department in 2006 above those of the Department of Pathology and Parasitology. For example, the capability to act was rated on average with 3,8 and the capability to achieve development results 4,4 in 2006, while at the Department of Pathology and Parasitology these capabilities were rated at 2,8 and 3,3 correspondingly. At the same time, the capabilities reached after the end of the OI/TEAM projects have been rated higher at the Department of Pathology and Parasitology. This means that in the perception of the respondents, the greater needs for development existed at the Department of Pathology and Parasitology back in 2006 but have evolved since then stronger and are now above the capability level of the Department of Clinical Studies.

Figure 55: Average Before-After ratings of the comparison departments



Source: Syspons and Nuffic 2018

4.3.3 Assessment of the effectiveness and impact by the evaluation team

Overall the evaluation team is highly confident that the combination of human resource development through integrated scholarships, research funding and upgrading of equipment (*causal mechanism*) contributed to an increased **research capacity** at the Department of Pathology and Parasitology and to an improved quality and quantity of research output (*outcome hypotheses 1 and 2*) (see figure 6 below). Likewise, the evaluation team is highly confident that the increased research output and the integrated scholarships enhanced the career development of the indirect beneficiaries (*outcome hypothesis 3*) as they are in key positions at the Faculty of Veterinary Medicine at the time of this evaluation (Associate Dean for Post Graduate and for Undergraduate Programmes). The comparison with the Clinical Study Department shows moreover that the contributions of the OI/TEAM project in terms of academic staff development and

publication output were relevant and added value to the overall stronger capacity development of the Department of Pathology and Parasitology.

Additionally, the evaluation team is also highly confident that the funded research under the project developed relevant knowledge addressing the development needs in the intervention region (causal mechanism) and then was adopted by stakeholders, e.g., Regional Veterinary Laboratory and Local Veterinary Clinics (*impact hypothesis 4*). Moreover, this is also the case regarding the implementation of further research activities in the department related to the funded research topic (*impact hypothesis 5*). The evaluation team is also cautiously confident that the knowledge adopted by the Regional Veterinary Laboratory and Local Veterinary Clinics and local equine holders led to a certain extent to behavioural changes (changed control and diagnostic measures, castrations, etc.), which in turn improved the situation of the final beneficiaries (*impact hypothesis 6*).

Within the field of **organisational capacity**, the evaluators are highly confident that the OI/TEAM project improved the organisational capacity at the Department of Pathology and Parasitology, especially with regards to the capability to act and to achieve development results. It is thereby highly confident that the major contribution for this strengthening comes from the improvement of the research capabilities. These improvements increased the department's capabilities to accommodate and attract further research funds (*outcome hypothesis 7*), as is reflected in the acquisition of additional research funds, both from VLIR-UOS and other organisations. Moreover, the evaluation team is highly confident that the improved research capabilities supported closing the gap between the departments and faculty's ambitions and the capacities available to live up to them (*outcome hypothesis 8*). For an overview, see figure 6 below.

Finally, the evaluation team is cautiously confident that the **outreach capacity** of the Department of Pathology and Parasitology has been strengthened. Hereby, it is certain that the funded research activities under the OI/TEAM project improved the intensity of interaction and eventually outreach services that the department is able to offer (*outcome hypothesis 9*). Moreover, the evaluation team deems relevant to stress that the OI/TEAM project focused on the Department of Pathology and Parasitology, where greater development needs existed and was overall able to contribute to its stronger capacity development when compared with the Department of Clinical Studies. Moreover, before the OI/TEAM project, the Department of Pathology and Parasitology had limited research activities, which could produce relevant knowledge and technologies to be transferred via outreach processes and structures. With the research under the OI/TEAM project it became possible for the department – in the opinion of the evaluators – to contribute and interact with external stakeholders through research findings, activities and tool, e.g., awareness creation, drug testing on equine, diagnostic tests (*outcome hypothesis 10*).

Finally, the evaluation team is highly confident that the OI/TEAM project contributed through its improved research and organisational development (causal mechanism) to an enhanced reputation of the department in the long term (*impact hypothesis 11*). To a lesser extent, the evaluation team is more confident than not that the strengthened networks of the department (*impact hypothesis 12*) have led to a concretisation of further cooperation opportunities. Challenges to this hypothesis exist due the relevance of personal relations for cooperation and exchange and the staff turnover occurring at the level of public service organisations (Regional Laboratory and local clinics).

Figure 66: Overview of assessed impact hypothesis¹⁰

		Hypothesis	Qualitative assessment	Quantitative scale
Research capacity				
Outcome	1	If human resources are strengthened by the project, then the quality and quantity of the research output by the department can be increased.	Highly confident that () is true	0.85 – 0.95
	2	If research equipment is newly introduced or upgraded by the project, then more high quality research activities / publications are possible.	Highly confident that () is true	0.85 – 0.95
	3	If human resources are strengthened and the individual research output is increased through the project, then the career development of indirect beneficiaries is enhanced.	Highly confident that () is true	0.85 – 0.95
Impact	4	If the funded research under the project develops relevant knowledge or technologies for the development needs of the intervention area, then this knowledge or technologies are adopted by early adopters.	Highly confident that () is true	0.85 – 0.95
	5	If the researchers involved in the projects research activities stay at the Department, then the research field is further developed.	Highly confident that () is true	0.85 – 0.95
	6	If the knowledge or technologies are taken up by early adopters, then behavioural changes occur in the intervention area, which improve the situation of the final beneficiaries.	Cautiously confident that () is true	0.70 – 0.85
Organisational and outreach capacity				
Outcome	7	If the project improves the research capacities, then the department's capabilities to accommodate / attract further research funds are strengthened.	Highly confident that () is true	0.85 – 0.95
	8	If the project enhances the research capacities, then the consistency between ambitions and available resources is improved.	Highly confident that () is true	0.85 – 0.95
	9	If the project provides opportunities to engage in a regular exchange on perceived development needs, then the networks of the department are strengthened.	Cautiously confident that () is true	0.70 – 0.85
	10	If the project supports the development of tools (e.g. databases, guidelines), then the provision of extension services improves.	Highly confident that () is true	0.85 – 0.95
Impact	11	If organizational capacities are improved, then the reputation of the department increases.	Highly confident that () is true	0.85 – 0.95
	12	If networks of the department are strengthened, then opportunities for further cooperation emerge.	More confident than not confident that () is true	0.50 – 0.70

Source: Syspons and Nuffic 2018

4.4 Sustainability of the OI/TEAM project

Sustainability is central for an intervention, since it aims to foster durable changes in the Ethiopian partner university. Hence, it is important to analyse to what extent the OI/TEAM project has promoted institutional, technical and academic sustainability. Moreover, it must be analysed whether the OI/TEAM project has initiated sustainable partnerships between the participating universities. For the purpose of this evaluation the different dimensions of sustainability were defined as follows:

- *Institutional sustainability* was defined as the degree to which human resources, processes and procedures of the OI/TEAM project have been incorporated into the structures of the university.
- *Technological sustainability* was defined as the degree to which newly upgraded or introduced equipment can still be used by the university without external assistance and maintenance support.
- *Academic sustainability* was defined as the degree to which the university will be better able to fulfil its core functions in the future.

4.4.1 Analysis of the sustainability of the project

With regard to the *institutional sustainability* the field mission and the conducted interviews demonstrated that the research field (equine trypanosomosis) on which the OI/TEAM project focused is still included in the priority areas of the department. This is also exemplified by the funded VLIR-UOS follow-up TEAM project on Trypanozoma

¹⁰ The impact hypothesis written in blue were not part of the Theory of Change. They were identified during the field mission as relevant additional impact hypothesis.

equiperdum. It built on the previously established parasitology and molecular laboratory and scientific expertise (PhD, MSc scholars). Moreover, the faculty has – according to the interviewees - sufficient academic staff available in these areas to continue research and teaching, although it has been made clear that it is also quite dependent on the OI/TEAM PhD and MSc. graduate. At the same time the qualification level of the staff improved through the OI/TEAM project and has further improved through other external funding and efforts from the Ethiopian government in terms of e.g., scholarships. In addition, indirect beneficiaries (meaning the PhD and MSc scholars) of the OI/TEAM project are located at key positions within the faculty (e.g., Associate Dean for Postgraduate Programmes / Associate Dean for Graduate Programmes) and thus are able to sustain changes in the future. Furthermore, the interviewed stakeholders expressed a high ownership over the initiated changes (e.g., utilisation of new research equipment). In terms of the development of the capabilities to relate, the implementation of the evaluation mission also made evident that networks of the Department of Pathology and Parasitology are strongly dependent on personal relations, e.g. from the former Ethiopian co-promotor and (the retired) senior technician from the Regional Veterinary Laboratory.

Also the *technological sustainability* of the newly introduced equipment that was used to set-up the first research laboratory of the faculty has been guaranteed at faculty level. A success factor for the sustainability and maintenance of the equipment is that most of the equipment purchased or upgraded under the OI/TEAM project was accessible for researchers from the faculty only with the supervision of the capacitated technicians. As a result, the MSc and PhD students at the faculty are able to make use of the equipment and at the same time are introduced to the correct usage of the equipment. Additionally, the equipment is still frequently used by students and researchers at the time of this evaluation. Nevertheless, the maintenance of the equipment and/or replacement is perceived as challenging for the faculty as it remains an open question whether the necessary national financial means would be available, according to the stakeholders interviewed.

Furthermore, the *academic sustainability* was assessed positively by the interviewed stakeholders. The integrated scholarship holders are still researching and teaching at the university. The success in retaining qualified personnel was also linked by the interviewees at the faculty with the sandwich scholarship modality offered by VLIR-UOS. These are seen as particularly effective to hold staff and thus decrease staff turnover. In this regard it was also stated that opportunities to further develop staffs development is also an incentive to stay on board. The existence of follow-up VLIR-UOS projects was also mentioned as an important incentive for researchers to stay engaged in the university, as they provide research funds that would most probably not be available otherwise.

Notwithstanding this, contextual factors that favoured and hindered sustainability were mentioned by the interviewees. As a favouring factor, Ethiopians who study a MSc. or a PhD have to commit themselves to stay several years in the public institutions. In general, this means that MSc. graduates stay for two years and PhD graduates for four years at a public institution, e.g., university. Although this regulation supports reducing staff turnover, it was also mentioned that universities remain highly politicised, resulting in favouritism that challenge staff motivation and distribute chances not according to merits but personal relationships and ethnic origin.

Likewise the OI/TEAM project also established *sustainable partnerships* on an individual and institutional level between the KU Leuven and the Faculty of Veterinary Medicine, according to the interviews conducted with the relevant stakeholders. On the individual level, staff members still have frequent contact with their respective Belgian counterpart to publish articles and to apply for external funds. The most visible result of such a collaboration is the acquisition of two funded VLIR-UOS projects.

4.4.2 Assessment of the sustainability by the evaluation team

Based on these findings the evaluation team concludes that the OI/TEAM project has initiated sustainable changes and partnerships with the Department of Pathology and Parasitology and the Faculty of Veterinary Medicine. The observed changes initiated by the OI/TEAM project were and are still present in terms of the research field and are still recognised as a competence area of the department.

At the same time the evaluation team assesses that sufficient academic staff to pursue research and teaching have been available after the project ended. In this regard it is helpful that the integrated scholarship recipients under the OI/TEAM project today occupy strategic positions within the Faculty of Veterinary Medicine and that they have been also teaching topics related to their research on equine dourine to their students. Furthermore, the ongoing maintenance and usage of the installed and upgraded equipment has also guaranteed a stable research capability in the corresponding research field in the opinion of the evaluation team. The supported networks of the Department of Pathology and Parasitology are however strongly dependent on personal relations, which could lead to a lack of sustainability, should these senior staff members leave.

Additionally, it has to be concluded that the department and the faculty have maintained sustainable partnerships with Belgian counterpart universities on an individual and institutional level. With regard to the former, staff engaged at the first OI/TEAM project are still in frequent contact with their Belgian counterparts and are successfully working together in the context of both follow-up TEAM projects. In this regard, the institutional partnership has also supported the acquisition of additional external funding. The portfolio approach of VLIR-UOS has therefore – in the opinion of the evaluation team – contributed to the sustainability of results.

5. Results of the field mission at Arba Minch University

5.1 Situation of the Department of Biology at the College of Natural Science of Arba Minch University around 2010

The **Arba Minch Water Technology Institute** (AWTI) was established in 1986 to address water-related issues. After several restructuring efforts and the establishment of new departments, AWTI got upgraded to the level of university in 2004. **Arba Minch University** is structured along five colleges that were created between 2004 and 2009. The College of Natural Science was founded in 2004. It currently counts eight science departments (Biology, Chemistry, Physics, Geology, Mathematics, Statistics, Sports Science, Meteorology and Hydrology).

The **Department of Biology** was one of the first departments at the time of the establishment of the college. According to interviewees, the department has maintained its main mission to serve both in research and teaching in accordance with the country's development strategies, eg., growth and transformation plan. The department's vision is and has been to produce qualified and responsible citizens and develop sustainable community-based researchers in conservation and proper utilisation of bioresources.

The situation of the Department of Biology in terms of **research and organisational capabilities** around 2010 was characterised by offering one undergraduate programme and two MSc. programmes (in Biotechnology and Botanical Science) that were set-up in 2009. No PhD programme had yet been established at the time of the TEAM project start. No interview partner was able to estimate with certainty the staff number and composition at the department level back in 2010. However, it was estimated that around 27 Msc. and two staff members with a PhD-degree were working at the Department of Biology, which in the perception of the interviewees already shows the low research capacities in the department prior to the project. Moreover, interviewees agreed that one central characteristic of the department was a lack of research culture. Consequently, staff members back in 2010/11 were rarely engaged in research and writing publications. This was linked to missing research equipment, funds and options to participate in a PhD-programme at the university. Additionally, it was emphasised that already in 2010 the study population had grown considerably, leading to an increased teaching load and making it difficult to adhere to the university general objective to spend at least 25% of time on research. In accordance to this situation, interviewees emphasised that the primary focus of the department was on teaching and producing graduate students. Interviewees estimated that more than 90% of the college budget was allocated for teaching purposes.

In 2010, the department had basic teaching and research laboratories. In total ten laboratories existed, of which four were used to conduct not only teaching but to a certain extent research activities (laboratory for genetics, botany, micro-biology and zoology). Neither an aquatic research lab nor a research centre on biodiversity existed. The equipment in the teaching and research labs was described as very basic, which often resulted in researchers having to rely on borrowing (often inadequate) equipment from other departments, e.g., the Water Engineering Department.

Furthermore, the interviewees from the Department of Biology were not able to name or quantify research projects or publications around 2010. However, interviewees acknowledged that research back in 2010 was almost non-existent and insignificant. This assessment is backed by figures from the Higher Education Relevance and Quality Agency (HERQA) from 2008, which show that in 2008 at the university level 16 research projects were ongoing and half of these projects were located at just one institute, namely the Water Technology Institute. This reflects the historical background of the university that emerged from the Arba Minch Water Technology Institute (HERQA 2008: p.47) and also the low research activities conducted in other university colleges.

No baseline value on the research budget of the college could be delivered by the interviewees. However, a source of funding in 2010 came – as for all Ethiopian universities – in form of research grants for completion of MSc. programmes that were provided by the Ethiopian government directly to individual students. In 2010 a MSc. student received around 24.000 Ethiopian Birr (aprox. 1000 Euros) to fund the research needed to complete the Master-Thesis. However, it must be taken into consideration that the two MSc. programmes at the Biology Department started in 2009. No grants were available for PhD-students, as no PhD programme was offered by the department.

In terms of **community and extension services** at the College of Natural Science and the Department of Biology in 2010, the capacities were described as low or even mostly lacking. Again, the interviewees were not able to recall or find documents listing the completed consultancy services. The main challenge was, according to the interviewees, that the department was focused on teaching students and had little visibility as a research institution. Interviewees from the Department of Biology referred to the weak reputation as a research institution by referring to the missing links to the Nechisar Natural Park. In the eyes of the interviewees, this illustrates the gap between the department's research activities and the requests to offer extension services (e.g., consultancy to the Park Management and the Ethiopian Wildlife Conservation Authority) around 2010.

5.2 Relevance of the TEAM project with the College of Natural Science

5.2.1 Analysis of the relevance

The criteria of relevance refers to the *raison-d'être* of any given programme or project. Its analysis renders insights into whether a project will be or is doing the right thing. Therefore, the question of whether a project is relevant is also relevant for the measurement of impact of this particular project. It is assumed that relevant projects have a higher chance in delivering impact as they address existing needs and thus generate ownership among the target group. Hence, when analysing the relevance of the TEAM project with the Department of Biology, it is necessary to study whether the project was aligned to national policies and strategies, addressed the needs of the college and/or department as well as the needs of its indirect and final beneficiaries.

The TEAM project was aligned to national efforts in Ethiopia to sustain and protect its biodiversity resources. At the time of the project's inception, Ethiopia had endorsed a National Biodiversity Strategy and Action Plan (2005-2010). Two main strategic objectives defined by the government were – among others – conservation of ecosystems within effectively managed protected areas (e.g., National Parks) and sustainable management of natural ecosystem outside protected areas. Moreover, the National Biodiversity Strategy includes an analysis of the National Parks as protected areas and identifies mayor threats – among them the settlements within or adjacent to the National Parks, grazing and deforestation (explicitly including Nechisar). In line with this definition of objectives and identification of threats, the TEAM project identified consistent ecological and policy challenges affecting the protected areas of Nechisar

Park, among others the increased demand for its natural resources in the form of fishing, grazing and agricultural usage from communities surrounding and inhabiting the park.

In addition, the Ethiopian National Biodiversity Strategy also acknowledges the importance to study, research and manage the interaction between people and biological resources. At the same time it outlines that opportunities to engage in this research and training for capacity development in Ethiopia were very limited (e.g., no degree programmes and/or adequate curricula in wildlife management, biosystematics, biodiversity conservation or community-based conservation of natural resources available at that time). In line with this, the TEAM project at Arba Minch University identified the problem of weak research and teaching capacities on natural resource management and socio-economic dynamics as main institutional issues.

At the university level, the TEAM project addressed existing needs of the Department of Biology and the College of Natural Science in all three dimensions of research, organisational development and community services, although with a clear focus on research capacity development. As described in the baseline chapter, all three capabilities were weak or lacking in 2010 at department level. At the same time, the college's strategy was ambitious in terms of its goals aspirations to become "one of the leading higher education institutions in the country and centre of excellence in water resources in East Africa" (University Strategy 2005-2010, in HERQA p.47). Interviewees from the department underlined the perceived gap between the university strategy's demanding goals and the resources available to achieve them, while stressing the relevance of the VLIR-UOS support. As is the case with other Ethiopian universities, no own strategy at department level existed at that time (or nowadays), as the departments at the college embrace the strategy at college and university level and give inputs to this strategy through the participation of selected members in the strategy development process. The project was therefore - according to the interview partners at the university - in line with the broader institutional strategies and priorities, which were outlined in the five year strategy (2005-2010) that emphasised (among other topics) the advancement of research and improvement of services to the community.

The cooperation between Arba Minch University and the Belgian partner universities (K.U. Leuven) was initiated through a cooperation request forwarded by the Arba Minch University President in 2009, who had established contacts as programme manager of a VLIR-UOS IUC programme at Mekelle University. According to the interviewees, the Belgian partners consciously advocated to start with a small project to first test the quality of cooperation. In this line of argument, if successful, Belgian and Ethiopian university partners foresaw the possibility to broaden cooperation with the establishment of a long-term IUC programme. The relevance of the TEAM projects has therefore also been described by the interviewees as important "seed money" that later would enable a broader cooperation.

The research concept and project design was eventually the result of a joint effort of the Ethiopian and Belgian partners and was mainly based on the results of a project identification mission conducted in 2009 and a project design mission in 2010, which led to writing the project proposal to VLIR-UOS in 2011. Both parties perceived their inputs as being taken into account as there was a joint process of project conceptualisation in 2010, through which problems, stakeholders and possible solutions were identified. This process included workshops and interviews with the main project stakeholders, e.g., the Park Management.

5.2.2 Assessment of the relevance of the project

Against the backdrop of these findings, the evaluation team concludes that the TEAM project was a relevant intervention that addressed pertinent academic and institutional needs at the Department of Biology and development needs in the Ethiopian southern rift valley.

With regards to the academic needs, it was corroborated during the evaluation mission that the Department of Biology did not have the basic equipment and personnel necessary to engage in quality research on water and land management issues related to the Nechisar Park. Coherent to this finding, the intervention was also pertinent to try to strengthen the department’s community service activities, which were limited in accordance to its own research and capacity limitations (e.g., in terms of infrastructure, knowledge and staff qualification). These limitations were also confirmed by the Ethiopian Government National Strategy on Biodiversity, which also refers to these deficiencies in general. From the perspective of the evaluation team, the project therefore fit into the existing institutional needs and strategy and as a consequence supported institutional goal achievement.

In terms of development needs, the project addressed an existing ecological problem that was also identified by the Ethiopian government and described in the National Strategy on Biodiversity, specifically also linking the socio-ecological threats to Nechisar Park. Even more, the strategy also mentions the need to study the socio-ecological challenges, which constituted the main problem underlying the TEAM project. The evaluation team therefore concludes that the idea of strengthening the capacities of the Department of Biology and supporting its engagement in studying and researching socio-ecological challenges of the Nechisar Park was a relevant development intervention.

5.3 Effectiveness and impact of the OI/TEAM project

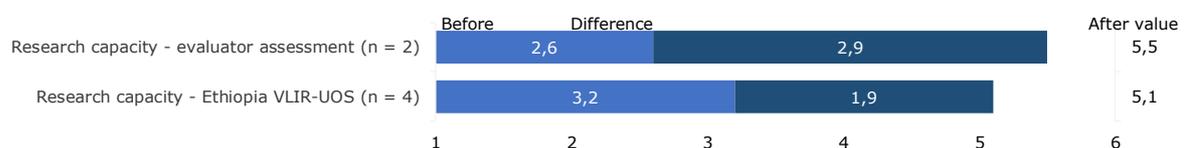
Insights on the effectiveness and impact of the TEAM project with the Department of Biology are of central importance to VLIR-UOS and SEO. While the criterion effectiveness captures to what extent the project’s objectives on outcome level have been achieved and what mechanisms facilitate or impede the achievement of objectives, the criterion impact investigates to what extent mid-term to long-term effects resulted out of these achieved objectives. As mentioned in chapter 2.2, the project – broadly speaking – tries to strengthen the research, organisational and extension capacities on outcome level to improve land and water resource management in the southern Ethiopian rift valley to the benefit of local fishermen, farmers and pastoralists in the long-run.

5.3.1 Analysis of the effects on research capacity

In the first field – research capacity – the TEAM project aimed at establishing an interdisciplinary group of highly qualified researchers capable of analysing and addressing land and water ecological and management problems (*impact*). For this purpose it wanted to enhance human resources (e.g., PhD scholarships), and upgrade research equipment (*outcome*).

According to the pen-and-paper survey conducted, the research capacity of the Department of Biology increased considerably due to the activities conducted by the TEAM project. While the Belgian and Ethiopian respondents see an increase of 1.9, the evaluators could observe an increase of 2.9. The differences can be explained to a certain extent by a more positive assessment of the Belgian partners in terms of the baseline situation.

Figure 77: Changes in the research capacity



Source: Syspons and Nuffic 2018

The two main drivers behind this positive research capacity development are the two core intervention areas of staff capacitation and infrastructure upgrading. Not only did

the TEAM project add two PhD-degree holders and a MSc. holder to the department and conduct trainings on the implementation of field research work, it also provided basic research equipment necessary to conduct research on water and land ecology.

The contributions to staff qualification can also be seen in the development of the absolute numbers at department level. The department had two PhD-holders when the TEAM project started, which means that at that time the TEAM project was targeting a duplication of the number of PhD holders working in the Biology Department. Currently the Department of Biology counts twelve staff members holding a PhD. Therefore, the TEAM project is accountable for around 17% of the PhD holders. The considerable increase in PhD holders was linked to the overall increase in terms of study postgraduate programmes. Besides nine MSc. programmes, the Department of Biology also counts with two PhD programmes (in Biodiversity and in Biotechnology). The TEAM project therefore contributed to complement existing efforts to increase the number of academic staff members and enhance staff profile.

In addition to the formal increase in staff qualification at the Department of Biology, the TEAM project offered a pre-doc scholarship to a lecturer from the Department of Sociology and Social Anthropology at Arba Minch University to cover the sociological aspects of water and land management in more depth and to address the multidisciplinary research problems. As funds for this third scholarship were not foreseen in the original project budget, the TEAM project eventually supported the student with some funding and later in applying and eventually receiving a two-year PhD scholarship from K.U. Leuven for the time after the end of the TEAM project life cycle.

Furthermore, the TEAM project also supported two further PhD students through its close cooperation with the NUFFIC STRONGBOW project.¹¹ The TEAM project offered academic backstopping for two PhD students from STRONGBOW project (Sustainable Tourism based On Natural Resource Management with Gender Balance towards Women), conducted joined trainings and workshops and even shared resources (e.g., the TEAM project financially supported a conference trip to Germany of a STRONGBOW PhD student, offered logistical support and also used equipment bought by STRONGBOW project).

Additionally, the TEAM projects included further (non-financial) support to over ten MSc. students from Arba Minch University. These MSc. students supported the research of the PhD-scholars and were trained in conducting research (e.g., field work) and using research equipment.

According to the interviewees, the TEAM project also contributed to an increase in research output in the form of **publications**. The Department of Biology does not have numbers on publications. However, it was emphasised that those were almost absent in the year prior to the TEAM project. The Department Head estimates that PhD-holders have around two to four publications. Through the TEAM project, around four publications were published by the two PhD scholars. Interviewees from the department indicated that more publications were probably indirectly supported due to the use of the newly gained research equipment. However, again the department was not able to provide a list or concrete number of these publications. More importantly according to the interviewees, the publications show the development of a research culture and activities that were not present before the TEAM project. Interview partners emphasised the key role that both PhD graduates from the TEAM project have played in spreading this "research spirit", which was described as an aspiration to develop knowledge and publish articles. At the same time, it was mentioned that the overall research budget from the university remains comparatively low (around five to ten percent of the university budget), thus making the research efforts dependant on external funds that

¹¹ The Strongbow Project is funded by the government of the Netherlands through NUFFIC. The partners of this project included – among others - KU Leuven and a consortium of five Ethiopian universities (Addis Ababa University, Arba Minch University, Mizan-Tepi University, Wondo-Genet College of Forestry & Natural Resource, and Jimma University). STRONGBOW stands for Sustainable Tourism based On Natural Resource Management with Gender Balance towards Women (STRONGBOW) and was a project under the aegis of Netherland's Initiative for Capacity Building in Higher Education – NICHE.

are currently being provided by VLIR-UOS through a follow-up TEAM project and a IUC programme.

Interviewees also suggested the effects of the competencies of the PhD-scholarship holders on the **PhD-scholars' career** at Arba Minch University. One PhD scholar is currently serving as Vice-President for Research and Community Services. The other PhD graduate is an associate professor and currently works as the IUC program manager.¹²

With regard to **research infrastructure**, the interviewees agreed on the relevance of the basic research equipment bought by the TEAM project, which enabled robust data gathering for water and land resource research. It was also emphasised that the equipment contributed to the data gathering necessary to establish a comprehensive Geographical Information System (GIS) database. According to the interviewees, this GIS database is still in use and being fed with data gathered by the Department of Biology. As an example, it was mentioned that a PhD-scholar under the current IUC programme (project 6) is using and updating data from the GIS database.

While the project successfully established the GIS database, the planned **decision-making-tool**, based on the GIS data, was not developed. The idea was to enable decision-makers to use geo-referenced information and scenarios to take evidence-based decisions (e.g., for the Park Management). However, the TEAM project underestimated the complexity of the needed mathematical models and the amount of data necessary to create the tool. According to the interviewees at Arba Minch however, the GIS database can already support decision-making, as it serves to draw research results and develop recommendations for water and land management.

A further contribution from the TEAM project in terms of impact was the establishment of a **Research Centre for Biodiversity**. While the idea for this research centre - born during the project inception - was to integrate it into the Department of Biology, the centre has now been upgraded to become one of six University Research Centres.¹³ At the same time, the thematic focus has been broadened. Nowadays, it includes cultural diversity topics, which is reflected in the centre's renaming as the "Biodiversity and Cultural Diversity Research Centre". According to the interviewees, the contribution of the TEAM project was to motivate the college's management to establish the centre once the TEAM project started. Moreover, the TEAM project also involved staff from the centre to participate in research and trainings (e.g., GIS training). The centre is financed by Arba Minch University and disposes of research funds. University researchers can compete for these research funds via calls for participation. One of the former TEAM project PhD scholars has been able to win research funds from the centre and is currently establishing a research station within Nechisar Park that will be used - among others - by university scientists and the park management to further conduct research and monitoring activities on the park's cultural and biological biodiversity.

An unintended impact mentioned by interviewees was the knowledge transfer in the field of **education**, as both PhD-scholars have engaged in educational activities after graduating. For example, both PhD graduates from the TEAM project coach PhD-students in the field of biodiversity. Moreover, they also provide academic backstopping and thesis supervision to MSc. students. Through these education activities, thematic, methodological and sector knowledge is transferred.

Another unintended impact departed from the field work trainings organised during the TEAM project. As these were perceived as a success, the College of Natural Science together with K.U. Leuven have established a **field course project** through which students and lecturers from different disciplines conduct participatory research on specific topics (e.g., livelihood improvement). Besides students and lecturers from Arba Minch and K.U. Leuven, students and teaching personnel from ETH Zürich University and (in the future) Eldoret Kenia University also join the field course at Arba Minch.

¹² This career development is similar to the one analysed in the context of the OI/TEAM project on equine trypanosomiasis. A comparison to individual scholarship holders in Ethiopia can be found in chapter 5.3.1.

¹³ The remaining five are: Water Resource Research Centre, South Omo Anthropological Research Centre, Livestock and Fisheries Research Centre, Gircha Highland Fruits and Vegetable Research Centre and Collaborative Research and Training Centre for Neglected Tropical Diseases

5.3.2 Analysis of the effects on external stakeholders and final beneficiaries

The stakeholders who were identified for involvement according to the project proposal were Nechisar Park, district government authorities and NGOs. With regards to the planned involvement of NGOs and the district government authorities, the interviewees pointed out that these did, in the end, almost not participate in the implementation of the project, although efforts to involve these stakeholders by the project members nevertheless existed (e.g., representatives were invited to take part of project events).

The key stakeholder in the project concept and in the implementation remained the Nechisar Park Management, with which it was foreseen to collaborate through – among others – ecological and participatory field research. According to the interviewees from Arba Minch University and the Park Management, the main effect of this cooperation was that trusted information about the state of degradation and possible counteracting measures, e.g., delineation of protected breeding sites in the lakes of Nechisar Park, could be provided. This was – according to all interviewees – key to creating awareness among Nechisar Park stakeholders (e.g., fishery associations) and being able to start a behavioural change process on how to use the natural resources of the Nechisar National Park (see below concerning impacts on final beneficiaries).

Furthermore, the evidence-based information created a common ground to involve Nechisar Park stakeholders (EWCA, Fishery Association) to discuss issues related to biodiversity and water and land-related challenges during the time of project implementation. It has also provided the opportunity to communicate the challenging situation to a broader population (through the involvement of media representatives). These efforts and the continued engagement of Arba Minch University in the park after the TEAM project ended – including further presentations to park stakeholders – have supported the creation of awareness about the situation at Nechisar Natural Park. To indicate to growing awareness among broader parts of the park's stakeholders, interviewees referred to the current GIZ development project at Nechisar Park and efforts to sign a Memorandum of Understanding between the National Park, the Arba Minch University and the zonal justice offices to cooperate in aspects related to law enforcement and control of illegal activities within the park.

According to the project concept, final beneficiaries of the TEAM projects were fishermen, farmers and pastoralists that shall benefit in the long-term from the sustainable land and water management at Nechisar Park and its surroundings. As interviewees acknowledged, the TEAM project was not able to establish an intensive contact with pastoralists and farmers (among others due to security reasons) and instead opted to focus on the fishery associations.

The interviews with the representatives of the fishery associations revealed that the TEAM project had four major effects. Although the fishermen had noticed changes (decreasing fishing rates and water degradation) in the park prior to the TEAM project, the interaction with the TEAM project and the park management during its research and project activities were key to creating understanding and awareness about the actual situation of the park's lakes. The interviewees from the fishery association reported that they were "shocked" by the status of degradation and feared losing their livelihood in the future. This first effect of the TEAM project was followed by a behavioural change among the members of the fishery associations. On the one hand, the licenced fishermen started respecting demarcation lines drawn by the park management (and based on research data gathered by the TEAM project) to protect fish breeding sites. On the other hand, all fishery associations agreed to change use of certain types of fishing nets that indiscriminately catch fish (including fish larvae). Additionally, the interviewees from the fishery associations emphasised that they are now working closely together with the park management, especially in aspects related to law enforcement with regard to illegal (unlicensed) fishermen in the park. Interviewees from the park management in turn reported that trust in the interaction with the fishery associations has grown

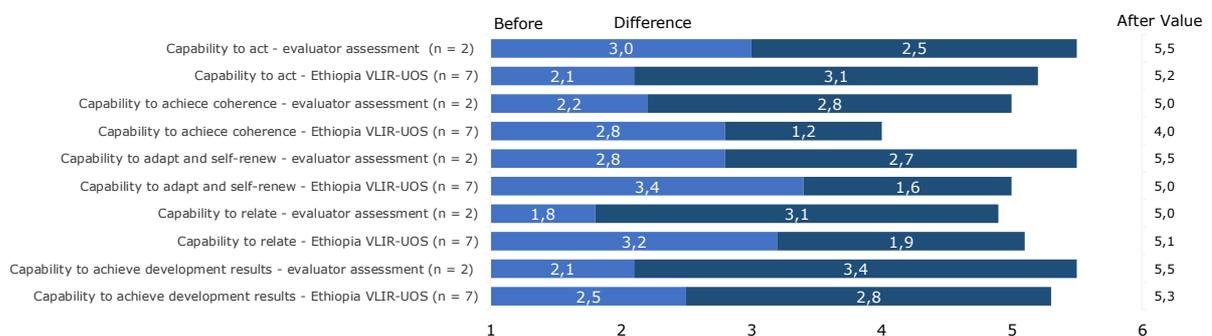
considerably in the last years and strongly linked this improvements to the evidence-based discussions that were propelled by the university research.¹⁴

5.3.2 Analysis of the effects on organisational and extension capacities

To reach an organisational and extension capacity level at the department and the college in the long term that is capable of delivering research in land and water ecological problems (*impact*), the TEAM project aimed at increasing the Ethiopian partner’s application of new knowledge, infrastructure and tools (*outcome*).

In this regard the pen-and-paper survey shows an improvement in all five capabilities in the view of the respondents as well as the evaluators due to the activities implemented under the TEAM project (see figure 11). As the assessments show, the evaluators have assessed the described baseline more critically than the TEAM project members themselves, but mostly agree on the target assessment of the situation after the project.

Figure 88: Changes in the organisational capacity



Source: Syspons and Nuffic 2018

The **capability to act** and the **capability to achieve development results** have been rated by the Belgian and Ethiopian survey respondents as the capabilities that have been developed the most through the TEAM project. While the capability to act experienced an increase of 3.1, the capability to achieve development results was perceived to have advanced by 2.8 points. This can be explained on the one hand by the project’s activities in upgrading infrastructure and the investment in the qualification of human resources that have an immediate effect on the capability to implement research activities and develop research results. On the other hand, the ability to attract further funding (e.g. follow-up VLIR-UOS projects) also contribute to this perceived increase in capabilities. In line with this are the contributions in terms of publications that were given by the TEAM project and that helped increase the capability to achieve development results. Overall, the interviewees strongly linked the developed capabilities to act and to achieve development results with the increased possibilities to engage in research.

Moreover, the survey respondents also perceived positive changes regarding the capability to relate (+1.9 points) and to a lesser extent capability to adapt (+1.6 points) and the capability to achieve coherence (+1.2). With regard to the **capability to relate**, the interviewees especially emphasised the importance of the TEAM project in terms of creating tools (e.g., GIS database) that can be used to engage in interaction with stakeholders and offer services. According to the interviewees, creating these tools was a main impulse set by the TEAM project to further develop the extension capacities. Although the TEAM project did not have to start from scratch, interviewees underlined that the network of the Department of Biology and Arba Minch University with external stakeholders was improved due to the TEAM project. In this regard, interviewees

¹⁴ Although the evaluation team made efforts to get data on the development of income of the fishermen, concrete numbers were not obtained. Interviewed fishermen were reluctant to share the information. However, the interview partners from the Park and Fishermen Associations insinuated that income has been decreasing due to less fish being caught and to a certain extent to fishermen that are now avoiding overfishing themselves.

emphasised that one of the main cornerstones in terms of institutionalising the relation between Arba Minch University and Nechisar Park was the **Memorandum of Understanding** signed in the first years of the project implementation. The importance for Arba Minch University was derived from the requirements set by the governing national authority (EWCA) to conduct research in the National Park. According to this, research and study activities needed to be authorised by EWCA to ensure that interventions in the park do no harm. Furthermore, interviewees emphasised that the cooperation and trust between the park management (and the fishery associations) and the researchers from Arba Minch University, especially from the Department of Biology, has grown since the TEAM project interaction, making the exchange of thoughts and knowledge a regular activity. This has also contributed to further research being conducted, e.g., by the IUC programme at Arba Minch University.

Moreover, in terms of long-term impacts on the capabilities to relate, interviewees also linked the TEAM project and the further developed research capabilities (and reputation) as a contribution to the services being offered by the Department of Biology to the GIZ development cooperation project that is being implemented at Nechisar national park. Currently GIZ is aiming at strengthening the park management and support the ecological monitoring of the park, including by strengthening law enforcement efforts. For establishing its project, GIZ also relied on the research support delivered by Arba Minch University by working together with - among others - the two TEAM project PhD graduates. For example, GIZ hired one of the PhD graduates to conduct research on the topic of community livelihood and interviewed the other PhD scholars to better assess the ecological situation of lakes. According to GIZ, the department has a good reputation, which led GIZ to pursue a Memorandum of Understanding with Arba Minch University.

In terms of the department's **capability to adapt** to changing circumstances and the **capability to achieve coherence**, the respondents also indicate some rather minor improvements caused by the TEAM project. Interviewees indicated that both TEAM project PhD-scholars have shown leadership qualities and high motivation, which they have applied in their senior management responsibilities at the Department of Biology and Arba Minch University. Interviewees therefore linked to a certain extent the skills development caused by the integrated scholarships to the organisation's management capabilities. On the other hand, the CDI survey also reveals that both capability dimensions were assessed rather high before the TEAM project, thus limiting contributions the project could provide to further improve them.

5.3.3 Assessment of the effectiveness and impact of the TEAM project

The evaluation team is highly confident that the combination of human resource development through integrated scholarships, research funding and upgrading of equipment (causal mechanism) contributed to an considerable increase in the **research capacities** at the Department of Biology and to an improved quality and quantity of research output (*outcome hypotheses 1 and 2*) (see figure 9 below). Besides, the evaluation team is highly confident that the increased research output and the integrated scholarships enhanced the career development of the indirect beneficiaries (*outcome hypothesis 3*) as they are currently in key positions at Arba Minch University (e.g., Vice-President for Research and Community Service).

Besides, the evaluation team is also highly confident that the funded research under the TEAM project developed relevant knowledge addressing the development needs in the intervention region (causal mechanism) and then was taken-up by stakeholders, e.g., Nechisar Park Management and Fishery Associations (*impact hypothesis 4*). Moreover, this is also the case regarding the implementation of further research activities in the department related to the funded research topic (*impact hypothesis 5*). The evaluation team is furthermore highly confident that the knowledge adopted by the park management and the fishery associations led to a certain extent to behavioural changes (e.g., changes in how and where to fish), which in turn could lead in the long-term to improving the situation of the final beneficiaries (*impact hypothesis 6*).

Within the field of **organisational capacity**, the evaluators are highly confident that the TEAM project improved the organisational capacity at the Department of Biology, especially with regards to the capability to act and to achieve development results. It is thereby highly confident that the major contribution for this strengthening comes from the improvement of the research capabilities. These improvements increased the department’s capabilities to accommodate and attract further research funds (*outcome hypothesis 7*), as is reflected in the acquisition of additional research funds from VLIR-UOS. Moreover, the evaluation team is highly confident that the improved research capabilities supported closing the gap between the ambitions of the departments and colleges and the capacities available to live up to them (*outcome hypothesis 8*).

Finally, the evaluation team is highly confident that the **outreach capacity** of the Department of Biology has been strengthened. Hereby, it is certain that the funded research activities under the TEAM project improved the intensity of interaction and eventually outreach services that the department is able to offer (*outcome hypothesis 9*). With the research under the TEAM project it became possible for the department – in the opinion of the evaluators – to contribute and interact with external stakeholders through research findings, activities and tools, e.g., awareness creation, delination for breeding sites (*outcome hypothesis 10*).

Finally, the evaluation team is highly confident that the OI/TEAM project contributed through its improved research and organisational development (causal mechanism) to an enhanced reputation of the department in the long term (*impact hypothesis 11*), which is reflected among others in the cooperation with GIZ. The evaluatiuon team is also highly confident that the strengthened networks of the department (*impact hypothesis 12*) have led to a concretisation of further cooperation opportunities. For example, this can be seen in the current biodiversity station being set up by Arba Minch University within Nechisar Park.

Figure 99: Overview of assessed impact hypothesis¹⁵

		Hypothesis	Qualitative assessment	Quantitative scale
Research capacity				
Outcome	1	If human resources are strengthened by the project, then the quality and quantity of the research output by the department can be increased.	Highly confident that () is true	0.85 – 0.95
	2	If research equipment is newly introduced or upgraded by the project, then more high quality research activities / publications are possible.	Highly confident that () is true	0.85 – 0.95
	3	If human resources are strengthened and the individual research output is increased through the project, then the career development of indirect beneficiaries is enhanced.	Highly confident that () is true	0.85 – 0.95
Impact	4	If the funded research under the project develops relevant knowledge or technologies for the development needs of the intervention area, then this knowledge or technologies are adopted by early adopters.	Highly confident that () is true	0.85 – 0.95
	5	If the researchers involved in the projects research activities stay at the department, then the research field is further developed.	Highly confident that () is true	0.85 – 0.95
	6	If the knowledge or technologies are taken up by early adopters, then behavioural changes occur in the intervention area, which improve the situation of the final beneficiaries.	Highly confident that () is true	0.85 – 0.95
Organisational and outreach capacity				
Outcome	7	If the project improves the research capacities, then the department's capabilities to accommodate / attract further research funds are strengthened.	Highly confident that () is true	0.85 – 0.95
	8	If the project enhances the research capacities, then the consistency between ambitions and available resources is improved.	Highly confident that () is true	0.85 – 0.95
	9	If the project provides opportunities to engage in a regular exchange on perceived development needs, then the networks of the department are strengthened.	Highly confident that () is true	0.85 – 0.95
	10	If the project supports the development of tools (e.g. databases, guidelines), then the provision of extension services improves.	Highly confident that () is true	0.85 – 0.95
Impact	11	If organizational capacities are improved, then the reputation of the department increases.	Highly confident that () is true	0.85 – 0.95
	12	If networks of the department are strengthened, then opportunities for further cooperation emerge.	Highly confident that () is true	0.85 – 0.95

Source: Syspons and Nuffic 2018

¹⁵ The impact hypotheses written in blue were not part of the Theory of Change. They were identified during the field mission as relevant additional impact hypothesis.

5.4 Sustainability of the OI/TEAM project

Sustainability is central for an intervention, since it aims to foster durable changes in the Ethiopian partner university. Hence, it is important to analyse to what extent the TEAM project has promoted institutional, technical and academic sustainability. Moreover, it has to be analysed if the TEAM project has initiated sustainable partnerships between the participating universities. For the purpose of this evaluation the different dimensions of sustainability were defined as follows:

- *Institutional sustainability* was defined as the degree to which human resources, processes and procedures of the TEAM project have been incorporated into the structures of the university.
- *Technological sustainability* was defined as the degree to which newly upgraded or introduced equipment can still be used by the university without external assistance and maintenance support.
- *Academic sustainability* was defined as the degree to which the university will be better able to fulfil its core functions in the future.

5.4.1 Analysis of the sustainability

Concerning the *institutional sustainability* the field mission and the conducted interviews demonstrated that the research topics (aquatic and terrestrial biodiversity as well as participatory research) on which the TEAM project focused are still included in the priority areas of the Department of Biology. This is also exemplified by the funded VLIR-UOS follow-up IUC programme, which includes a project on biodiversity. According to interviewees, research being conducted within this IUC project has also built on the previously established research results. Moreover, currently the college has – according to the interviewees - academic staff available in these areas to continue research and teaching. At the same time the qualification level of the staff improved through the TEAM project and has further improved through further VLIR-UOS external funding and efforts from the Ethiopian government in terms of e.g., scholarships. In addition, indirect beneficiaries (meaning the PhD and MSc scholars) of the TEAM project are located at key positions within the faculty (e.g., Vice-President of Research and Community Services) and thus are able to sustain changes in the future. Furthermore, the interviewed university staff expressed a high degree of ownership over the initiated changes (e.g., expansion of staff qualification and research activities, research equipment).

The *technological sustainability* of the newly introduced equipment for setting up the first research aquatic laboratory of the faculty has also been guaranteed at college level. A success factor for the sustainability and maintenance of the equipment was that most of the equipment purchased or upgraded under the TEAM project was accessible for researchers from the college only with the supervision of the capacitated technicians, one of which is the MSc. graduate supported by the TEAM project. As a result the MSc. and PhD students at the college are able to make use of the equipment and at the same time are introduced to the correct use of the equipment. Additionally, the equipment is still frequently used by students and researchers at the time of this evaluation. Overall, although the maintenance of the equipment and/or its replacement is perceived as challenging, interviewees were confident that the necessary national financial means would be available. The interviewees referred to the efforts of the college and university in purchasing new equipment as an indicator that priority would exist to support the technological sustainability of the equipment bought by the TEAM project. Moreover it was indicated that the equipment bought by the TEAM project was rather basic research equipment that would not require extensive maintenance funds.

Furthermore, the *academic sustainability* was assessed positively by the interviewed university employees. On the one hand, the integrated scholarship holders are still researching and teaching at the university. The interviewees at the college agreed that the sandwich scholarship scheme offered by VLIR-UOS are particularly effective to hold staff and thus to decrease staff turnover. In this regards is was also stated that opportunities to further conduct research due to existing funds and research projects is also an incentive to stay on board and live up to the developed research culture. The presence of the VLIR-UOS IUC and the Biodiversity and Cultural Diversity Research Centre therefore was also seen as an important incentive for researchers to stay engaged in the university.

On the other hand, favouring and hindering contextual factors with regards to sustainability were mentioned by the interviewees. As a favouring factor, Ethiopians who study a MSc. or a PhD have to commit themselves to stay for further years in a public institution. In general terms this means that MSc. graduates stay for two years and PhD graduates for four years at a public institution, e.g., university. Although this regulation supports reducing staff turnover, it was also mentioned that universities remain highly politicised, resulting in favouritism that challenge staff motivation and distribute chances not according to merits but personal relationships and ethnic origin. As a result, these challenges also decrease motivation and hinder staff retention once the compulsory period at the university is over.

Likewise the TEAM project also was described as a "seed project" through which a *sustainable partnership was established* between the K.U. Leuven, the University of Antwerp and Arba Minch University. According to the conducted interviews with the relevant TEAM project members, the TEAM project was from its beginning conceived as a starting point and test balloon for a possible more extensive cooperation in the future. As the project evolved well, the involved universities and the TEAM project members started their efforts to conceptualise and establish a further TEAM project and the IUC programme. Activities to coordinate and conceptualise these further cooperation projects were implemented during the TEAM project under scrutiny. On the individual level, staff members have maintained frequent contact with their respective Belgian counterparts to interact on topics related to publications and to apply for external funds. In this regard the acquired fund two VLIR-UOS follow-up projects stand as the most visible result of such a collaboration.

5.4.2 Assessment of the sustainability

The evaluation team concludes that the changes and partnership between the Ethiopian and Belgian partners that were initiated by the TEAM project under scrutiny are sustainable. The observed changes at the Department of Biology and the College of Natural Science still exist with regards to the research topics (land, water and biodiversity resource management) and biodiversity is renowned as a scientific competence area of the department and the college.

Moreover, the evaluation team evaluates that sufficient academic staff members are available to pursue research and teaching since the project ended. This positive context has been backed by the integrated scholarship recipients under the TEAM project, as both are not only still engaging in corresponding research activities, but also occupy strategic positions within the University (e.g., Vice-President for Research and Community Service). They have also been transferring knowledge through teaching topics related to their research on land and water management to their students. Furthermore, the department and college have engaged in an ongoing maintenance and usage of the installed and upgraded equipment, which in turn has supported to reach a stable basic research capability in the corresponding research.

Additionally, it must be concluded that the department and the university have been able to maintain a durable partnership with their Belgian counterparts, both on an individual and institutional level. At the individual level the staff engaged at the first TEAM project are still in frequent contact with their Belgian counterparts. Moreover, the department

and the college are successfully working together at the institutional level on both follow-up measures (follow-up TEAM project and IUC programme). This sustainable institutional partnership is – in the perspective of the evaluators – also important to maintain a higher level of research activities and infrastructure after the first TEAM project ended. In line with this assessment, the evaluation team also concludes that the portfolio approach of VLIR-UOS has contributed to the sustainability of effects.

6. Conclusions

A major **strength** of the OI/TEAM projects is their relevance both at the academic and developmental level. This is reflected in the OI/TEAM projects being aligned with government policies and university strategies (e.g., on enhancing staff qualification profile). Moreover, in both cases Ethiopian partners were involved from the start and contributed to the identification and interpretation of the challenges that needed to be addressed by the project research. Besides, the evaluation shows that the OI/TEAM projects were directed towards an academic partner with considerable capacity development needs. The existence of these needs increases the relevance of the OI/TEAM intervention.

Further strengths can be found in terms of the research capacity built up by both projects. The OI/TEAM projects successfully combined human resource development through integrated scholarships, access to research funding and an upgrading of equipment to improve the research capacities of the targeted departments. The increased quality and quantity of research output reflects this improved situation. The implementation of further research also reflects the improved research capacities. The contributions delivered by the OI/TEAM projects were supported by a suitable political and academic context that encouraged the enhancement of staff qualification. This is reflected in the overall considerable improvements in terms of staff qualification at the Ethiopian science departments. Additionally, although not a direct objective of the OI/TEAM projects, the support for publications and PhD degrees enhanced the career development of the indirect beneficiaries, who are currently in key positions and have shown leadership qualities.

Moreover, in the field of organisational capacity it becomes clear that the OI/TEAM projects are especially successful regarding the development of the capability to act and to achieve development results. These two capabilities are enhanced by the OI/TEAM projects' contributions in terms of research capacities. Moreover, for the two projects under scrutiny it can be concluded that a direct link exists between the improved research capabilities and the closing gap between the departments' ambitions and the capacities available to meet them. This link also exists between the improved research capacities and the increased departments' capabilities to accommodate and attract further research funds. The success of these first OI/TEAM projects acted as "seed money" that allowed follow-up funding to be acquired from VLIR-UOS. The follow-up VLIR-UOS projects add an important contribution to the institutional, technological and academic sustainability of the first OI/TEAM project effects.

Finally, the evaluation shows that also outreach capacities are strengthened through the OI/TEAM projects. Hereby, the funded research activities under the TEAM project improved the intensity and quality of interaction, thus strengthening the departments' network. Moreover, the focus on developing outputs (e.g., tools) that can be taken up and used by the stakeholders increased the opportunities to enhance outreach services the department is able to offer. Together with the increased research and organisational capacities, this has led to the departments' enhanced reputation in the long term.

Notwithstanding these strengths, also some **weaknesses** were identified in the evaluation process. In terms of developmental objectives, the evaluation shows that some effects are difficult to sustain in the long-term. With regards to the OI/TEAM project on equine disease this became evident regarding the drug distributed by the project. While equine holders were able to benefit from it while the project was running and able to purchase the drug, this benefit ran dry once the project ended. Moreover,

the tools, guidelines and to a certain extent knowledge created by the project are difficult to sustain in the long term in a context that is characterised by continuous staff turnover. A weakness could also be identified with regards to the development objective of the OI/TEAM project on water and land management as it was not able to develop the foreseen decision-making tool and reach out to the various external final beneficiary groups mentioned in the project proposal.

Despite these weaknesses, it can however be concluded that the OI/TEAM projects made a valuable contribution to the capacity development of their Ethiopian partners as well as to the improvement of the development situations in their intervention regions.

7. Lessons learned regarding the evaluation design and methodology used

Having implemented the proposed evaluation designs for the field mission to Ethiopia regarding the VLIR-UOS IUC intervention, there are – as in every evaluation – lessons learned. On a general level the following lessons could be identified:

- The proposed country selection in the Terms of Reference caused a selection bias in the choice of countries, as countries were selected in which there was a higher chance of identifying impacts. This reduces the external validity of the applied evaluation design regarding the assessment of OI/TEAM projects in general. Therefore, it can be concluded that the evaluation results in this report cannot be generalised to VLIR-UOS OI/TEAM interventions. They can solely highlight tendencies regarding why and if some OI/TEAM projects work or do not work.
- Furthermore, these two OI/TEAM projects were selected on the basis of an evaluability assessment. On the one hand, this ensured that the projects were evaluable at all. On the other hand, this also reduced the external validity of the results, as two interventions were chosen that were probably better planned and implemented than others. However, this does not mean that interventions that score high in an evaluability assessment are necessarily better than others. Nevertheless, a selection bias cannot be ruled out completely when applying this selection procedure. This selection bias as well as the country selection bias was however accepted by the involved stakeholders in the inception phase due to the formative nature of this impact evaluation.

Furthermore, the following specific lessons could be identified:

- Before the implementation of both OI/TEAM projects no baseline studies had been implemented. The baseline information provided in the project proposals was not sufficiently detailed for the purpose of this evaluation. Consequently, a baseline had to be reconstructed in order to make a before-and-after comparison. This however, entailed the risk that interview partners or secondary data do not describe a correct baseline situation due to changed perceptions over time (interview partners) or possible political motivation (interview partner and secondary data). Moreover, some information was not available for the reconstruction. As a result, the before-and-after comparison might be flawed due to a better or worse described baseline situation than actually existed in the past. This could however be mitigated to a certain extent in this impact evaluation by data and methods triangulation, in the opinion of the evaluators.
- Specifically for Ethiopia, the organisation of interviews and data collection activities as well as access to secondary data proved very difficult. Direct communication (both via email and telephone) with interview partners in general remained mostly unanswered. Only through the intensive support of the Ethiopian (co-)promotors was it possible to schedule appointments with relevant interview partners at all. Moreover, as a direct communication with the targeted interviewees was not possible, it limited the opportunities for the evaluation team to communicate a better understanding of what is expected from them in terms of preparation (e.g., time, purpose and having certain data available).
- A specific challenge found in Ethiopia was moreover obtaining secondary data from the universities. While interviewees would first acknowledge that secondary

data is available and could be delivered if necessary (e.g., by pointing out that annual reports exist), they afterwards forwarded the responsibility for having or accessing the data to other persons or departments at the university that were not available to the evaluation. Moreover, some interview partners openly questioned the reliability of the data stored in university databases ("nobody proves if the data is correct"), something they did not do openly question during the fact-finding mission. This made it necessary to reconstruct certain data, which – as stated above – brings a bias with it. Taken into consideration this and the above mentioned challenges found in Ethiopia, future evaluations of VLIR-UOS projects should ensure more time for the organisation and preparation of the field mission. Moreover, to motivate people to get involved in the evaluation process, incentives should be defined (e.g., by making it a formal requirement or benefit for future VLIR-UOS project acquisitions to have participated and cooperated in the evaluation of past VLIR-UOS evaluations). In addition, it could prove beneficial to formally assign a coordination and support responsibility for the former (co-) promoters (or an alternative person within the university) that is then officially appointed by the hierarchy within the university after receiving a formal request from VLIR-UOS to cooperate in an evaluation process.

- Limitations to the evaluation also emerged when trying to involve certain external stakeholders (e.g., final beneficiary groups). On the one hand, the limitations come from finding, contacting and mobilising individual representatives of the beneficiary groups, especially when these are not organised and the intervention ended many years prior to the evaluation. On the other hand, security issues played an important role that hindered visiting certain regions and meeting with final beneficiaries of the TEAM projects.
- A key success factor was the existing institutional memory in both universities in form of actually available persons who had participated in the OI/TEAM project. Without them being available and still working in the universities a rich data collection could not have taken place. Therefore, in future impact evaluations a key aspect should be the analysis of available persons in fact-finding missions who have participated in the intervention under investigation.
- The applied 5C model to measure the development of the departments' capacities proved very useful as it gave theoretical depths to this impact evaluation. By using this model the evaluators developed evaluation questions that would not have been posed otherwise. At the same time, it is the view of the evaluators that the theoretical model used has to be adapted further to the specificities of the OI/TEAM intervention in question to be even more valuable in the future. In the evaluator's opinion, it should be decided whether the analysis should take place along the capabilities of the 5C model or along the developed indices of research, educational, outreach as well as an additional one regarding governance capacity.
- The combination of secondary and empirical data as well as the collection of quantitative and qualitative data proved in most cases sufficient to either prove or disprove the developed impact hypotheses of the OI/TEAM projects. This wide angle of data collection techniques should be kept in future impact evaluations.
- A particular success of this impact evaluation was the combination of different designs (before-and-after, quasi-experimental, and contribution analysis). This proved very beneficial to not only answer questions of "if" but also "how" impact occurred. Hereby we were also able to identify relevant causal mechanisms that might prove useful for the future development of OI/TEAM interventions. As result, the approach of the most "appropriate design" for impact evaluations should be introduced as a standard in future impact evaluations.

List of annexes

Annex A: Bilbiography

Annex B: List of conducted interviews

Annex C: Theory of Change

Annex D: Assessment grid

Annex E: Data collection instruments

Annex A. Country report Ethiopia VLIR-UOS

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A.2 List of conducted interviews

Name	Job title	Date	Type of interview
Prof. Jozef (Seppe) Deckers, Prof. Karen Vancampenhout, Prof. Luc De Meester, Dr. Stefaan Dondyene	Former Belgian project promotor and co-promotors, K.U. Leuven (Addis Arba Minch University project)	22.01.2018	Group interview
Prof. Dr. Goddeeris	Former Belgian promotor, K.U. Leuven (Addis Ababa University project)	22.01.2018	Telephone interview
Dr. Claes	Former Belgian co-promotor (Addis Ababa University project)	14.11.2017	Telephone interview
Dr. Hagos Ashenafi	Former project promotor, former Head Department of Pathology and Parasitology, Associate Dean for Postgraduate Programmes	29.01.2018	Personal interview
4. Dr. Fikru Regassa	Associate Dean for Undergraduate Programmes	29.01.2018	Personal interview
Dr. Fufa Abunna:	Associate Professor: Head, Department of Clinical Studies	29.01.2018	Personal interview
Dr. Dinka Ayana	Dean of the College of Veterinary Medicine and Agriculture	29.01.2018	Personal interview
Ato Tadesse	Ex- Head of Livestock Agency for Oromia Regional State Agricultural Bureau	30.01.2018	Personal interview
Dr. Boggaalaa Galatee	Head, Assela Veterinary Regional Lab	31.02.2018	Personal interview
Dr. Hailu Wondium	Ex-head of the Arsi-Bale Regional Veterinary Lab	31.02.2018	Personal interview
Alemu Tola	former lab technician at the Arsi-Bale Regional Veterinary Lab	31.02.2018	Personal interview
Dr. Simon Shibru	Vice President for Research and Community Services of Arbaminch University, former project promotor	05.02.2018	Personal interview

Title of the chapter

Name	Job title	Date	Type of interview
Terefe Adugna Assefa	Individual Scholarship Holder	13.02.2018	Telephone interview
Kefyalew Gebeyew Mekonnen	Individual Scholarship Holder	14.02.2018	Telephone interview
Abise Gudeta	Individual Scholarship Holder	14.02.2018	Telephone interview
Anwar Wabela	Individual Scholarship Holder	14.02.2018	Telephone interview
Gizeshwork Tadesse Gurmu	Individual Scholarship Holder	22.02.2018	Telephone interview
Dawit Shiferaw	Individual Scholarship Holder	09.02.2018	Personal interview
Filmon Hailu Reda	Individual Scholarship Holder	09.02.2018	Personal interview
Estifano Gebre Awet	Individual Scholarship Holder	14.02.2018	Telephone interview
Fanos Tadesse	Individual Scholarship Holder	09.02.2018	Personal interview
Temesgen Abegaz Yimam	Individual Scholarship Holder	02.02.2018	Personal interview

Name	Job title	Date	Type of interview
Dr. Guchie Gullie	Former Vice President for Research and Community Service of the University, IUC programme officer	05.02.2018	Personal interview
Mulugeta Duresa	Department Head of Physics	06.02.2018	Personal interview
Dr. Damtew: President	President Arba Minch University	06.02.2018	Personal interview
Dr. Fassil Eshetu and Mr. Baysa Busa	Former scholarship holders	07.02.2018	Personal interview
Dr. Alemayehu Hailemichael Mezgebe	Dean of the College of Natural Sciences	07.02.2018	Personal interview
Darnachew Mullu + lecturer	Department Head of Biology, College of Natural Science, Arba Minch University	08.02.2018	Group interview
Ato Abraham Marye Dese	Chief Warden, Nechsar National Park	08.02.2018	Personal interview
Mr. Arega Chalcha (+ colleague)	Vice chairperson of the Fishery Association	09.02.2018	Group interview
Ato Solomon	Chairperson of the Fishery Association	23.11.2017	Personal interview
Dereje Abera	GIZ Nature Conservation Advisor	09.02.2018	Personal interview

A.3 Evaluation design

A.3.1 Research design

A. 3.1.2 Assessing relevance

Based on the developed evaluation questions in the assessment grid (see annex), the criterion of relevance in this field mission was operationalised along the following aspects.

Relevance on the level of the partner: The starting point for the analysis of relevance was the suitability of its intended objectives and impacts with the overarching needs of the departments and faculties in order to identify facilitating or hindering factors for achieving impact. It was assumed that relevant interventions have a higher impact on the level of the partner, as the partner is more willing to implement the intervention when it corresponds with its perceived needs (ownership). Hence, the analysis focused on the compatibility of the VLIR-UOS projects goals with the existing objectives and priorities with regard to its organisational, research and extension capacities at the start and during the implementation of the projects. To answer this analytical aspect we conducted an extensive desk research of documents, in which we included the departments/faculties' objectives and development strategies. Furthermore, we also conducted interviews to triangulate the findings of the desk research.

Relevance on the level of the partner country: On this level we analysed to what extent the VLIR-UOS projects were relevant with regard to the existing development needs in the intervention region. In line with this, we analysed the extent to which the VLIR-UOS projects addressed developmentally relevant research gaps in Ethiopia. Here it was assumed that relevant interventions are more effective in achieving impact as they firstly experience fewer hindering factors and address pressing issues for which solutions are sought. We assessed if the VLIR-UOS projects aligned to existing national or regional strategies and policies. Moreover, we conducted interviews with internal as well as external stakeholders to analyse the developmental relevance of the addressed research gaps through the VLIR-UOS projects.

Relevance on the level of the indirect and final beneficiaries: In order to assess the relevance on the level of the beneficiaries, we analysed and systematised their different needs and involvement in the formulation and implementation of the VLIR-UOS projects. For this purpose we distinguished between the needs and involvement of the indirect beneficiaries (within the universities) and the final beneficiaries (e.g., farmers fishermen, etc.). In this regard it was believed that a stronger involvement of beneficiaries in the formulation of and implementation of an intervention leads to a stronger needs orientation in the intervention's results. This in turn should result in a higher impact, as the ownership of the beneficiaries is higher. For this purpose we conducted interviews with the different types of beneficiaries to identify different degrees of involvement before, during and after the VLIR-UOS projects.

A. 3.1.2 Assessing effectiveness and impact

Over the past ten to fifteen years development practitioners and agencies have considered it increasingly important to demonstrate the effectiveness and impact of their interventions. While in the past the assessment of development interventions was dominated by analysing the implementation of outputs, the following recent economic and political trends have shifted the attention of development evaluation – according to the literature – to the outcomes and impact of development interventions:

- In light of the global financial crisis there has been a reduction of the developmental budget in many European countries.

- There has been – especially in the Anglo-Saxon world – a drive among donors for greater demonstration of “value for money”.
- At the same time there is an increasing public perception in European states that five decades of development cooperation have not had the effects hoped for. This has pressured donors to demonstrate clear and tangible results that can be understood by the general public.
- The evidence-based policy movement, which has gained momentum over the past few years, has led to more systematic examination of some of the main assumptions underlying development work. This has led to much greater attention among development actors to measure and demonstrate what works more and less well, and to use this knowledge to leverage greater effectiveness from development programmes (Hearn & Buffardi, 2016, p. 6).

As a consequence of these trends, there was a strong push to define the concept of impact and to evaluate the impact of development interventions with the most rigorous methods possible. The term “rigorous methods” was thereby equated with methods based on counterfactual analysis, which could attribute observed changes to the intervention under investigation. Other forms of methods were seen as inferior to counterfactual analysis and no distinctions were made between definitions of impacts, the concept of causal inference and possible designs for impact evaluations (e.g., Stern et al., (2012); Befani & Mayne, 2011; White & Philips, 2012).

This led to a debate in academic discourse in which the concept of attribution was viewed as the “gold standard” for impact evaluations while the concept of contribution was seen as a second best option. The concept of attribution involves a causal claim about the intervention as the cause of the impact and a measurement of how much of the impact can be linked to the intervention (e.g., White, 2010). Contribution, in contrast, only makes a claim about whether and how an intervention has contributed to an observed impact by using a theory of change that takes influencing factors into account; thus reducing uncertainty about the contribution the intervention is making (Mayne, 2001).

As a result there was an effort in academic literature on impact evaluations to use experimental designs (randomised control group trials (RCTs), quasi-experimental and natural experiments) to address the impact question. The main quest in this time period was to associate the intervention as a single cause to a measure of the net impact that could be attributed to the intervention in question. This also included answers to the counterfactual question: “What would have happened if the intervention had not taken place?” Confirmation to this question was sought to demonstrate that without the intervention there would be no impact or a different impact, while focusing on the additional change induced by the intervention. Typically this was done by using control or comparison group designs which compare situations with and without the intervention in order to calculate the net impact between them (e.g. Angotti, 2007).

However, in recent years this discourse was broken up – most notably by the DFID Working Paper on Designs and Methods for Impact Evaluations authored by Stern et al. In this paper, as in others, it was firstly noted that the concept of impact is used in various forms and definitions across and within development agencies. Additionally, it was argued that the way impact is defined and understood has widespread implications on evaluation questions and possible evaluation designs to answer these questions (Hearn & Buffardi, 2016).

More importantly, however, the Stern paper raised the issue that there are different types of approaches to causal inference with different requirements, strengths and weaknesses, of which the experimental approach is one. According to their paper, there are at least four different approaches to causal inference, namely:

- The **regularity approach** assesses causality depending on the frequency of association between a given cause and an effect. This means that causality can

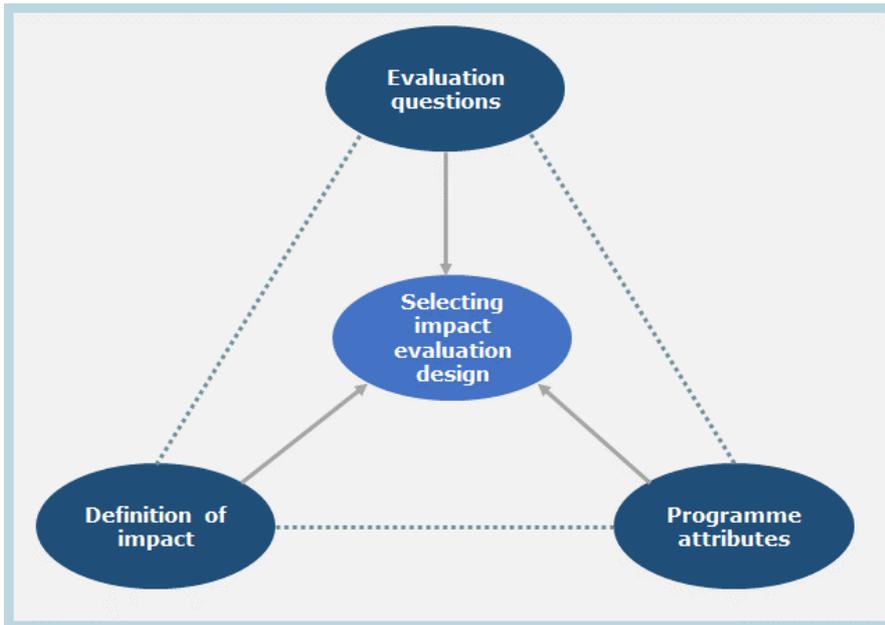
be verified when several cases that were subjected to the same intervention have the same effects. Since several cases are analysed when using this approach, it will be possible to know with certainty whether the intervention works (namely, whether it has the desirable effects) or not. A requirement for this approach hence is to have a high number of diverse cases. Its strength lies in the fact that this approach can discover "laws" among the set of chosen cases, while its weakness is that it does not explain "how" or "why" observed effects occur (Stern et al., 2012).

- This approach thus answers the following impact question: Which factor causes the observed intended impact of the intervention?
- The aforementioned **experiments / counterfactuals approach** requires an "intervened" and a "control/comparison" group, where the first one was subjected to the intervention while the second one was not. That means that causality is evaluated by analysing the differences between these two groups. This is a robust method that avoids several types of bias, since the groups are randomly selected or matched. Nevertheless, this approach does not focus on the "why" or "how" and it is weak at generalising the results of the experiment (external validity) since it excludes analysis of the context. Therefore, a pitfall of this approach is that an experiment that worked in a given context might not work in a different one (Ibid.).
 - This approach thus answers the following impact question: How much of a difference did the intervention (or other factors) make in terms of the intended impact?
- The **multiple causation approach** generates from the idea that an effect is caused by a combination of causes. In order to evaluate impact using this approach, the evaluators need to have access to a sufficient number of cases that have comparable characteristics. This approach is useful when dealing with cases that have a limited complexity in order to e.g., identify typologies. Vice versa, it is difficult with this approach to interpret highly complex combinations of causes within a selected case (Ibid.).
 - This approach thus answers the following impact question: Did the intervention (or other factors) make a difference with its intended impact, for whom and under what circumstances?
- The **generative / mechanisms approach** relies on identifying the "causal mechanisms" that generate the desirable effects. In order to use this approach, the existence of one case with good quality data sources is sufficient. The approach is based on an existing theory for the intervention in question, which allows the evaluator to understand the factors that cause the observed effect. As a result this approach permits an in-depth understanding of the case and its context, proving a detailed explanation of both of them. Nevertheless, this approach has a larger risk of bias on behalf of the researcher, since the estimation of the effect and its causality depends in a greater manner on qualitative appreciations, rather than quantitative data. This approach is mainly used in "theory-based" and "realist" evaluation designs (Ibid.).
 - This approach thus answers the following impact question: How did the intervention achieve the intended observed impact? What is it in the intervention that made it (not) work to achieve the intended observed impact?

As a result of this and similar papers the academic discourse changed from thinking in hierarchies for evaluation designs (the experiment/ counterfactual approach as the "gold standard") to a discussion of "local" best choices for evaluation designs. Since then, the main focus has been on aligning definition of impacts, evaluation questions and programme attributes with the best available evaluation designs to enable causal

inference (see figure 2). As a consequence the most rigorous design is no longer equated with the experiment/ counterfactual approach but with the quest of finding the most appropriate design for a specific context. This also means that it is possible to use more than one design – if possible – to compensate for the weaknesses of the other designs. Moreover, it is also recommended to combine designs and methods – even within the same design approach – to strengthen causal claims (Befani & Mayne, 2014; Stern et al., 2012).

Figure 1010: Design triangle



Source: Stern et al., 2012 adapted by Syspons 2017

Against this background Syspons and Nuffic conducted fact-finding missions to identify the most appropriate evaluation design for the selected interventions. The basis for this was a theoretical and practical evaluability assessment that was implemented prior to and during the fact-finding mission.¹⁶

At the same time it was agreed with SEO, ARES and VLIR-UOS during the inception phase of this impact evaluation that this impact evaluation should not only answer the question of whether the observed impact can be attributed to the assessed interventions, but also why and how impact occurred. This was also in line with the Terms of Reference, which stressed the learning trajectory of this impact evaluation.

As a result Syspons and Nuffic concluded that the most appropriate evaluation design for the measurement of the effectiveness and impact of both VLIR-UOS projects would be a combination of a contribution analysis, outcome mapping and a before-and-after design.¹⁷ Furthermore, it was concluded that a counterfactual approach could only be implemented at organisational level at one of the projects (Control of equine trypanosomosis (*Trypanosoma equiperdum* and *T. evansi*) in the Arse and Bale highlands of Ethiopia) as only there a suitable comparison group was identified.

Therefore, the different chosen evaluation designs should fulfil the following functions:

- The **before-and-after design** compares key indicators before and after the intervention to identify the change that has occurred – particularly in the research and organisational dimensions of the Ethiopian partner universities. For this purpose it was envisioned to collect baseline data as well as data at the end of the intervention using secondary data and interviews.

¹⁶ The detailed results of the theoretical and practical evaluability assessment are documented in the submitted inception and study report.

¹⁷ A detailed description of these evaluation designs can be found in the inception report.

- However, as this design is very weak in terms of robustness (e.g. the changes occurred due to other factors), we combined it with a **contribution analysis** to assess the contribution of the VLIR-UOS projects to the observed changes in the research and organisational dimension on the level of the Ethiopian partner universities.
- Furthermore, on the organisational level of the project on equine disease, it was possible to implement a **counterfactual approach** by using comparison groups to identify the intervention's attribution to the observed change.
- As a counterfactual on the level of final beneficiaries was not feasible in both projects, but extension activities and change of behaviour were relatively important as to the overall project objectives, we included an **outcome mapping** as a approach that allowed us to measure the projects' contribution to changes in the behaviour of and the relationship between actors with whom the projects have interacted with.

A. 3.1.3 Assessing sustainability

In development cooperation sustainability – according to the OECD-DAC definition – is usually analysed by evaluating to what extent the positive short and mid-term impacts of an intervention can continue to exist after the funding for the intervention has ended. A particular focus is put on the long-term compatibility of the intervention with the organisational or country-specific context as this is viewed as one of the prerequisites for sustainability. Sustainability is thus not only a continued existence of intended impacts but also includes the acceptance and ownership of the intervention's impacts by the relevant stakeholders in the partner country.

Using this definition in the field of university cooperation in Belgian development cooperation, we assessed the following three different aspects of sustainability in order to analyse whether interventions that aim at sustainability, achieve higher impact.

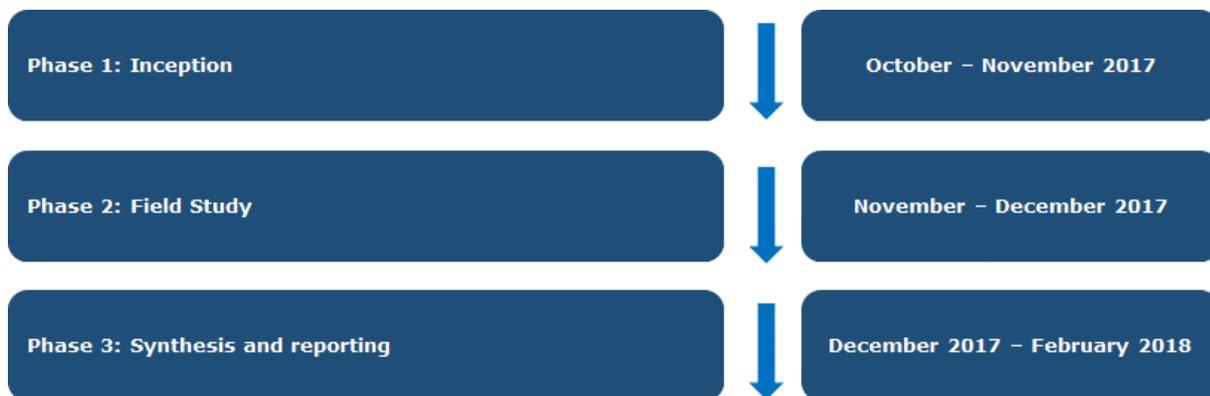
- **Institutional sustainability:** To analyse this aspect of sustainability, we evaluated to what extent the initiated changes by the Ethiopian partner universities have been integrated into their structures or processes. Moreover, we investigated to what extent e.g. new technologies or knowledge have been adopted and integrated into practices on the level of the final beneficiaries outside the universities.
- **Technical sustainability:** To analyse the technical sustainability of the VLIR-UOS projects, we investigated the suitability of the installed equipment at the Ethiopian universities. In addition, we analysed to what extent capacities exist to maintain and use the installed equipment.
- **Academic sustainability:** Regarding this aspect, our main focus was on the development of the research dimensions of the Ethiopian universities. We analysed e.g. if research publications can be foreseen for the future/ were published, if academic staff can be retained or if mechanisms to guarantee the relevance of research are in place.

To analyse these aspects of sustainability, we conducted interviews with the different stakeholders as well as interviews with external stakeholders the universities.

A. 3.2 Methodological approach

The evaluation of the OI/TEAM projects in Ethiopia consisted of three phases:

Figure 1111: Phases of the evaluation of the OI/TEAM projects in Ethiopia



Source: Syspons and Nuffic 2018

A.3.2.1 Phase 1: Inception

At the beginning of the inception phase we conducted a **situation analysis** for the **contribution analysis** and the **before-and-after design** on the basis of secondary data to reconstruct the situation with regard to the educational, research and organisational capacity dimensions (baseline). Concerning the latter we also collected baseline data regarding the Capacity Development Index (CDI). In parallel we reconstructed the **Theory of Change** of both VLIR-UOS projects in a participatory workshop and interviews with Belgian promoters. The ToC was thereby reconstructed in such a way that it depicts how the VLIR-UOS was planned and discussed deviations that occurred during implementation. The developed ToC for both projects can be found in the annex.

Based on the ToC we developed an **assessment grid** in which we detailed the specific evaluation questions regarding effectiveness and impact for each project. Furthermore, we assigned indicators and descriptors to each evaluation question in order to operationalise them. In addition, we assigned data collection sources to each evaluation question to make the data basis on which each evaluation question will be answered transparent.

Next to the evaluation questions on impact in the assessment grid, a specific focus was put on the influence of the OI/TEAM projects on the organisational capacity of the Ethiopian partner universities. For this purpose we adapted the proposed **CDI** in the inception report – based on the 5C model – to the circumstances of the projects (for an explanation of the 5C-Model see below). We operationalised the CDI in the form of closed questions based on ordinal scales that were used in a pen-and-paper survey. This survey was given to the interview partners in the Ethiopian partner universities during the field mission. In addition, the evaluators used this survey to assess the organisational capacities from an external perspective. Moreover, qualitative data regarding the CDI was collected during the interviews in the field mission. The assessment grid – including the dimensions of the CDI – can also be found in the annex A.4.

In order to capture (un)intended changes by the OI/TEAM projects on the organisational capacities of the Ethiopian partner universities, Syspons and Nuffic developed a capacity development index (CDI). This index is composed from the answers given by the respondents in the conducted CDI survey and is based upon the following five capabilities of the 5C model which was introduced in the inception report.

- The **capability to act** was operationalised as the availability of adequate financial and human resources as well as infrastructure in the universities.
- The **capability to generate development results** was operationalised as the resulting impact of the financed research (e.g., in terms of publications).

- The **capability to relate** to other actors was operationalised as the existence of strategies, networks and tools for outreach.
- The **capability to adopt and self-renew** was operationalised as the ability to understand and adapt to shifting contexts as well as to encourage change processes.
- The **capability to achieve coherence** was operationalised as coherence between the vision / strategy and the resources to live up to the ambitions. Additionally, the existence of a shared vision was assessed.

These five capabilities were thereby operationalised along different items in the survey implemented in the field mission (see annex A.6). Also in this survey the respondents had to rate the situation before and after the OI/TEAM project. This data was complemented by the views of each evaluators, who assessed the situation before and after the OI/TEAM projects through interviews conducted with relevant stakeholders in the field mission using the same scale. All assessments for each item were made using a scale of 1 (capability is lacking) to 6 (capability is high). The CDI was thereby calculated as the average of the different perspectives of the Belgian and Vietnamese respondents, which all had the same value, for each capability for the situation prior to and after the OI/TEAM projects. The calculated mean of these different perspectives resulted in a value for the situation before and after the OI/TEAM projects. The calculated differential value between the calculated mean for the situation before and after the OI/TEAM projects thus indicates the changes within each capability, which can be contributed to the analysed OI/TEAM projects by comparing the collected baseline data to the observed results after the implementation of the OI/TEAM projects (see chapters on effectiveness and impact for each OI/TEAM project).

The assessment grid then formed the basis for the development of the following **data collection instruments**

- CDI pen-and-paper survey
- Interview guide for Belgian promoters
- Interview guide for presidents, vice-presidents and deans
- Interview guide for local Ethiopian promoters and co-promoters
- Interview guide for indirect beneficiaries
- Interview guide for representatives of the comparison group
- Interview guide for external stakeholders
- Interview guide for final beneficiaries

The developed data collection instruments can also be found in the annex.

Furthermore, we developed the methodology for the **counterfactual design** in the form of a **quasi-experimental design** in order to evaluate whether the newly generated organisational capacities increased more than would have happened without the VLIR-UOS intervention. For this purpose, we identified a science department within the same faculty and university (to ensure similar a comparable institutional context) that had a similar level of capabilities at the time of the OI/TEAM project initiation. The similarity was operationalised along six aspects:

- Number of academic staff members at the department
- Qualification of academic staff members at the department
- Number of publications published by department personnel
- Quality (national/international) of the publications published by department personnel

- Number of post-graduation programmes (MSc./PhD)
- Number of teaching and research laboratories

Afterwards, we prepared the implementation of the **outcome mapping** by using the developed Theory of Change (see above). The Theory of Change depicted the intentional OI/TEAM project designs. It was afterwards complemented by a stakeholder map that identified the boundary partners and assigned these to the intended outcomes identified in the Theory of Change. This was to better understand how the OI/TEAM projects intended to contribute to changes with regards to the boundary partners. Eventually, the information helped develop the evaluation questions and indicators.

Finally, we organised the field mission in close cooperation with our local consultant. Out of this, we developed an **agenda** for the field mission.

A.3.2.2 Phase 2: Field study

The field mission in Ethiopia, Belgium and Germany was carried out from November 2017 until February 2018 and encompassed 21 days in total. Its objective was to collect the necessary data to populate the developed ToC with data and to answer the evaluation questions in the assessment grid. To gather relevant data for answering the evaluation questions, 32 **interviews and group interviews** with 42 persons were conducted with the following relevant stakeholders:

- Belgian promoters / co-promoters: 8
- Ethiopian promoters / co-promoters: 3
- Indirect beneficiaries (e.g., PhD and MSc. scholarship holders): 4
- President, Vice-Presidents, Deans: 3
- Laboratory technicians: 2
- Individual scholarship holders: 10
- Final beneficiaries : 4
- External stakeholders: 8

Within these interviews we not only collected qualitative data on the observed changes for the contribution analysis (see below), but also baseline data for the before-and-after design as well as qualitative data for the CDI. With regard to the latter we also implemented the pen-and-paper survey at the end of each interview or group interview at the Ethiopian partner universities to collect the necessary quantitative data for the CDI.

In addition, we also collected **secondary data** from the Ethiopian partner university, which was continuously analysed to add information to the performance story of the envisioned ToC for the contribution analysis and for the baseline for the before-and-after design.

During the field mission we continuously tested the developed ToC; meaning that we tested whether the ToC worked out as planned. Hereby we differentiated between different stakeholder groups and locations (e.g., departments, external stakeholders, final beneficiaries). In this regard we also continuously tested,

- if the observed impacts occurred in the sequence envisioned by the ToC,
- if the timing of the occurrence of the impacts meets the voiced expectations of the stakeholders and of the assembled evidence in secondary literature,

- if stakeholders (e.g., fishermen) who have been affected by the projects react as expected,
- if the different interviewed stakeholders described the observed impacts in a plausible and credible way and
- if there are differences in the observed impacts in different locations (e.g., between department and faculty level).

Based on the collected data we constantly assembled, assessed and revised the gathered performance story of the projects during the field mission. For the interpretation of the data the following four questions guided the evaluation team:

- To what extent was the VLIR-UOS project implemented in an appropriate way?
- To what extent was the VLIR-UOS project accepted by the different target groups?
- To what extent did the VLIR-UOS project reach its intended short- and mid-term impacts?
- To what extent did the VLIR-UOS project reach its intended long-term impacts?

Based on these questions, we also analysed whether the implementation of the VLIR-UOS projects was flawed or correct, the VLIR-UOS projects were accepted or not by the target groups and if the programme theory was flawed, correct or missing crucial external factors.

Moreover, the evaluation team analysed to what extent alternative explanatory factors might have caused the observed impacts. Hereby we paid particular attention to singular cases that did not follow the described impact pathway. In addition, we assessed to what extent

- participants or the departments at the Ethiopian partner universities have been affected by other interventions,
- observed impacts could only be reached due to the combination of different interventions (e.g., portfolio approach of VLIR-UOS but also other external interventions) and
- observed impacts were caused by changes in external circumstances (e.g., changes in the regulatory framework for universities).

At the same time the evaluation team continuously sought out additional evidence where it was needed to complete the performance story. Hence, the final performance story described in chapter 5 and 6 was assembled in an iterative process throughout the field mission.

A.3.2.3 Phase 3: Synthesis and reporting

At the beginning of the synthesis and reporting phase we verified and validated the quantitative data. Subsequently to this quality assurance, we started with the **quantitative data analysis of the CDI survey**. We analysed the data using univariate statistical analysis such as frequencies, percentages or means. We edited the data and depicted the results in graphs and tables in order to get an overview over the findings and to identify relevant aspects and developments.

In parallel to the quantitative data analysis we also conducted the **qualitative data analysis**. For this purpose we analysed, triangulated and synthesised the collected qualitative data on the basis of the assessment grid. In a next step we assessed the data in order to identify explanatory frameworks (e.g., recurrent themes, patterns,

respondent clusters, etc.) for each evaluation question and aspect. Then we deduced explanatory factors and patterns from the qualitative data. Furthermore, we also developed and used a scale to assess and transparently depict the confidence of a probability regarding the assessment of the causal inference of an analysed impact hypothesis (see figure 3). The assessment of the causal inference for each impact hypothesis was conducted during the internal workshop (see below) and is used in this report accordingly.

Figure 1212: Measuring confidence with probabilities

Qualitative assessment	Quantitative scale
Practically certain that () is true	0.99+
Reasonably certain that () is true	0.95 – 0.99
Highly confident that () is true	0.85 – 0.95
Cautiously confident that () is true	0.70 – 0.85
More confident than not confident that () is true	0.50 – 0.70
Neither confident nor not confident that () is true (or false) – no idea	0.5
More confident than not confident that () is false	0.30 – 0.50
Cautiously confident that () is false	0.15 – 0.30
Highly confident that () is false	0.05 – 0.15
Reasonably certain that () is false	0.01 – 0.05
Practically certain that () is false	Less than 0.01

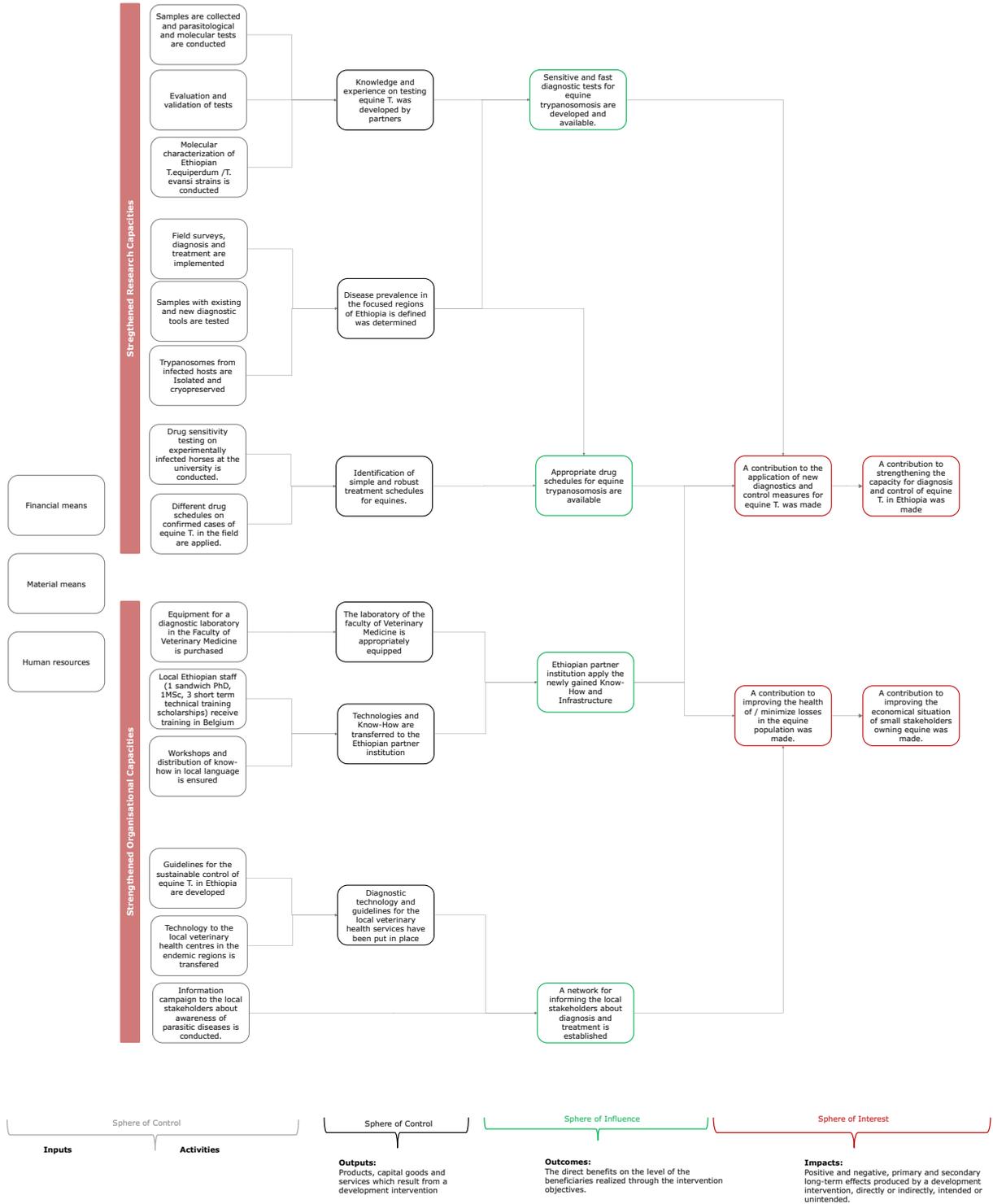
Source: Syspons and Nuffic 2018

After the data analysis, we then conducted an **internal debriefing** with the local expert to synthesis and systematise the collected data. In this setting we assembled and assessed the ToC of the VLIR-UOS projects by considering all different perspectives of the interviewees from the different OI/TEAM projects. The activity added value by triangulating and validating the findings by using data, method and researcher triangulations. In this light, the objective of the workshop was to synthesise the findings of the interviews and surveys as well as to identify key weaknesses and strengths of the developed ToC.

Based on the systematised, triangulated and synthesised findings, we then **drafted the country report for Ethiopia** and submitted it to SEO and the reference group in March 2018. All feedback received was incorporated into the report by Syspons and Nuffic and the final report was submitted to SEO and the reference group in April 2018.

A.4 Theory of Change

Control of Equine Trypanosomosis in the Arsi and Bale Highlands of Ethiopia (07/2006 – 08/2010)



A.5 Assessment grid

OI/TEAM project at Addis Ababa University

Evaluation Criteria	Evaluation Question	Analytical Focus	Indicators and/ or Descriptors	Sources of Verification						
				Interviews with ETH Faculty Dean	Interview with ETH Local Promotor	Interviews with ETH Indirect Beneficiaries (PhDs/Masters/Techicians)	Interviews with External Stakeholders (Local Clinic, Regional Lab, Oromia Agricultural Office)	Interview / Workshop with Target Group Representatives	Interviews with Belgian Promoters / Project Team Members	Secondary Data Sources
Relevance	To what extent did the objectives and the priorities of the project address the needs of the Department of Pathology and Parasitology /Faculty of Veterinary Medicine?	Research Capacity	1. Qualitative description of the department's objectives and priorities in the field of research capacity prior to the project 2. Qualitative description of the department's role in the project's inception process and research concept	X	X				X	X
		Organisational Capacity	1. Qualitative description of the department's objectives and priorities in the field of organisational and extension capacity prior to the project 2. Qualitative description of the department's role / inputs in the project's a) research concept b) project concept	X	X				X	X
	To what extent did the project take into account public sector strategies and policies (e.g. at faculty/university level), when formulating its objectives?	Public Sector Strategies and Policies	1. Qualitative comparison between the project's objectives and the objectives found in public sector strategies and policies 2. Qualitative assessment of public sector stakeholders on the needs-orientation of the project	X	X				X	X
	To what extent did the project take into account institutional strategies and policies (e.g. at faculty/university level), when formulating its objectives?	Higher Education Strategies and Policies	1. Qualitative comparison between the project's objectives and the objectives a) at Addis Ababa University strategies and policies b) Faculty strategies and policies	X	X				X	X
	To what extent did the project address developmentally relevant research gaps for Ethiopia?	Research Topics	1. Qualitative assessment of the needs-orientation of the newly created knowledge and technologies on equine trypanosomosis by the project for the development of Arsi and Bale Highlands, regarding: a) testing and diagnose b) prevalence and control 2. Qualitative assessment of the needs-orientation on equine losses as a relevant economic asset to smallholders in the intervention region	X	X		X		X	X
			Needs of Final Beneficiaries	1. Qualitative description of the involvement of the final beneficiaries in the project, differentiated by a) Project formulation phase b) Implementation phase		X			X	X

Evaluation Criteria	Evaluation Question	Analytical Focus	Indicators and/ or Descriptors	Sources of Verification						
				Interviews with ETH Faculty Dean	Interview with ETH Local Promotor	Interviews with ETH Indirect Beneficiaries (PhDs/Masters/Techncians)	Interviews with External Stakeholders (Local Clinic, Regional Lab, Oromia Agricultural Office)	Interview / Workshop with Target Group Representatives	Interviews with Belgian Promoters / Project Team Members	Secondary Data Sources
Effectiveness	To what extent did the project strengthen the research capacity of the Department of Pathology and Parasitology?	Research Processes and Methods	1. Introduction of new research processes / methods	X	X	X			X	X
		Research Publications	1. Number of research publications produced during the project a) International journals b) National journals 2. Number of research publications produced before the project compared with the number produced after the project differentiated by a) International journals b) National journals 3. Comparison of the development of publications between the Department of Pathology and Parasitology and the Department of Clinical Studies	X	X				X	X
	To what extent did the project strengthen the organizational capacity of the Department of Pathology and Parasitology?	Human Resources	1. Number of staff trained 2. Number of scholarships funded and successfully concluded, differentiated by MA/ PhD 3. Qualitative assessment of the adequacy of the trained human resources in the field of research (CDI - capability to act) 4. Comparison between the development of staff composition (quantitative and qualitative) between the Department of Pathology and Parasitology and the Department of Clinical Studies	X	X				X	X
		Research Infrastructure	1. Number of upgraded laboratories (CDI - capability to act) 2. Qualitative assessment of the availability of adequate space to conduct appropriate research (CDI - capability to act) 3. Qualitative assessment of the adequacy of the research infrastructure vis-à-vis the staff's technical expertise (CDI capability to act) 4. Comparison of the availability of research equipment between the Department of Pathology and Parasitology and the Department of Clinical Studies							
		Comparison Department	1. Number of research laboratories (CDI - capability to act) 2. Qualitative assessment of the availability of adequate space to conduct appropriate research (CDI - capability to act) 3. Qualitative assessment of the adequacy of the research infrastructure vis-à-vis the staff's technical expertise (CDI capability to act) 4. Access to journals 5. Staff number and composition 6. Availability of research funds	X	X	X			X	X
		Extension Services	1. Qualitative assessment of networking activities provided to the project's stakeholders 2. Qualitative assessment of the abilities to network and communicate with regard to informing stakeholders in the intervention region (CDI- capability to relate) 3. Qualitative assessment of network activity with stakeholders in the intervention region (CDI - capability to relate)	X	X	X			X	X

Evaluation Criteria	Evaluation Question	Analytical Focus	Indicators and/ or Descriptors	Sources of Verification							
				Interviews with ETH Faculty Dean	Interview with ETH Local Promotor	Interviews with ETH Indirect Beneficiaries (PhDs/Masters/Techicians)	Interviews with External Stakeholders (Local Clinic, Regional Lab, Oromia Agricultural Office)	Interview / Workshop with Target Group Representatives	Interviews with Belgian Promoters / Project Team Members	Secondary Data Sources	
Effectiveness	To what extent did the project develop new knowledge and technologies, which was taken up by early adopters?	Veterinary Medicine	1. Existence of funded research projects that took up / were based / motivated on the VLIR-UOS project results / insights 2. Qualitative assessment of the usage of new technologies, products and methods that were created by the VLIR-UOS project 3. Number of early adopters, which adopted the new knowledge/ technology, differentiated by a) Local Veterinary Clinics b) Regional Veterinary Laboratory		X		X		X	X	
	To what extent are the observed results in line with the developed Theory of Change?	Sequence and Timing	1. Qualitative assessment of the sequence of impacts foreseen in the Theory of Change 2. Qualitative assessment of the timeliness of the observed impacts		X			X	X	X	
	Which causal mechanisms support the underlying Theory of Change?	Plausibility of the Theory of Change	This evaluation question will be answered through the synthesis of the evaluation results.								
	What were necessary and sufficient conditions for the intended impact?	Conditions for Impact	This evaluation question will be answered through the synthesis of the evaluation results.								
	What other internal or external factors could explain the observed impact?	Factors	This evaluation question will be answered through the synthesis of the evaluation results.								
Impacts	To what extent did the project contribute to improve the application of new diagnostics and control measures for equine T.?	Academic impact	1. Ethiopian partner organisation (Faculty of Veterinary Medicine, Department of Pathology and Parasitology) are applying the newly gained knowledge regarding a) diagnostics b) treatment c) control schedules	X	X		X		X	X	
	To what extent did the project contribute to improve the health of / minimize losses in the equine population?	Development impact	1. Qualitative assessment of the Ethiopian partner organisation (Faculty of Veterinary Medicine, Regional Veterinary Laboratory, District Veterinary Medicine Clinics) on a) number of use cases		X	X	X	X	X	X	
	To what extent have there been synergies between different interventions of VLIR-UOS which strengthened the observed impact?	Portfolio Approach	1. Qualitative description of observed synergies between the project and other VLIR-UOS interventions, in terms of a) Timing b) Content		X				X	X	
	To what extent have there been unintended positive or negative impacts?	Unintended Impacts	This evaluation question will be answered through the synthesis of the evaluation results.								

Evaluation Criteria	Evaluation Question	Analytical Focus	Indicators and/ or Descriptors	Sources of Verification						
				Interviews with ETH Faculty Dean	Interview with ETH Local Promotor	Interviews with ETH Indirect Beneficiaries (PhDs/Masters/Techicians)	Interviews with External Stakeholders (Local Clinic, Regional Lab, Oromia Agricultural Office)	Interview / Workshop with Target Group Representatives	Interviews with Belgian Promoters / Project Team Members	Secondary Data Sources
Sustainability	To what extent has the project led to sustainable results?	Institutional Sustainability	<ol style="list-style-type: none"> Qualitative assessment of the institutionalisation of the changes initiated by the project at the Faculty of Veterinary medicine, into <ol style="list-style-type: none"> research strategies research activities research extension services Qualitative assessment of the number of staff available for continued implementation of the changes initiated by the project differentiated by <ol style="list-style-type: none"> number of available staff number of staff who left for employment elsewhere number of current vacancies Number of staff members continue to perform tasks for which they were trained 	X	X		X		X	X
		Technical Sustainability	<ol style="list-style-type: none"> Qualitative assessment of user rates of upgraded equipment and laboratories Qualitative assessment of the adequacy of the amount of technical staff available for use and maintenance of upgraded equipment and laboratories 	X	X				X	X
	To what extent did the project initiate a sustainable partnership between the participating universities?	Sustainability of Partnerships	<ol style="list-style-type: none"> Number of interventions in which the Faculty of Veterinary Medicine of AAU and at least one Belgian project partners are still working together, differentiated by <ol style="list-style-type: none"> Funded projects by VLIR-UOS Self-financed projects Funded projects by other stakeholders Number of spin-off projects which can be directly attributed to the project 	X	X				X	X

OI/TEAM project at Arba Minch University

Evaluation Criteria	Evaluation Question	Analytical Focus	Indicators and/ or Descriptors	Sources of Verification						
				Interviews with ETH Dean/ Vice-Rector	Group Interviews with ETH Local Promotor/Co-Promotor	Interviews / Focus Groups with ETH Indirect Beneficiaries	Interviews with External Stakeholders	Interview / Workshop with Target Group Representatives	Interviews with Belgian Promoters / Project Team Members	Secondary Data Sources
Relevance	To what extent did the objectives and the priorities of the project address the needs of the Department of Biology /College of Natural Sciences?	Research Capacity	1. Qualitative description of the department's/college's objectives and priorities in the field of research capacity prior to the project 2. Qualitative description of the department's/college's role in the project's inception process and research concept	X	X				X	X
		Organisational Capacity	2. Qualitative description of the department's/college's objectives and priorities in the field of organisational and extension capacity prior to the project 2. Qualitative description of the department's/college's role / inputs in the project's a) research concept b) extension service concept	X	X				X	X
	To what extent did the project take into account public sector strategies and policies, when formulating its objectives?	Public Sector Strategies and Policies	1. Qualitative comparison between the project's objectives and the objectives found in public sector strategies and policies 2. Qualitative assessment of public sector stakeholders on the needs-orientation of the project							
	To what extent did the project take into account institutional strategies and policies at Faculty/University level, when formulating its objectives?	Higher Education Strategies and Policies within Arba Minch University	1. Qualitative comparison between the project's objectives and the objectives of Arba Minch University higher education strategies and policies	X	X				X	X
	To what extent did the project address developmentally relevant research gaps for Ethiopia?	Research Topics	1. Qualitative assessment of the needs-orientation of the newly created knowledge and technologies on land and water resource management by the project for the development of Ethiopia's southern Rift Valley (surrounding Arba Minch), regarding: a) research b) resource management 2. Qualitative assessment of the needs-orientation on resource management as a relevant ecological factor in the intervention region	X	X		X		X	X
	How were the needs of the final beneficiaries of the project taken into account, when formulating the objectives?	Needs of Final Beneficiaries	1. Qualitative description of the involvement of the final beneficiaries in the project, differentiated by a) Project formulation phase b) Implementation phase		X			X	X	X

Evaluation Criteria	Evaluation Question	Analytical Focus	Indicators and/ or Descriptors	Sources of Verification						
				Interviews with ETH Dean/ Vice-Rector	Group Interviews with ETH Local Promotor/Co-Promotor	Interviews / Focus Groups with ETH Indirect Beneficiaries	Interviews with External Stakeholders	Interview / Workshop with Target Group Representatives	Interviews with Belgian Promoters / Project Team Members	Secondary Data Sources
Effectiveness	To what extent did the project strengthen the research capacity of the Department of Biology/College of Natural Sciences?	Research Processes and Methods	1. Introduction of new research capacities related to a) biodiversity assessment b) Participatory natural resources management c) Land-use and conservation planning d) GIS and Spatial Decision Support Systems	X	X	X			X	X
		Research Publications	1. Number of research publications produced during the project a) International journals b) National journals 2. Number of research publications produced before the project compared with the number produced after the project differentiated by a) International journals b) National journals	X	X				X	X
	To what extent did the project strengthen the organizational capacity of the Department of Biology/College of Natural Sciences?	Human Resources	1. Number of staff trained 2. Number of scholarships funded and successfully concluded by MA/ PhD 3. Qualitative assessment of the adequacy of the trained human resources in the field of research (CDI - capability to act)	X	X				X	X
		Research Infrastructure	1. Number of upgraded laboratories (CDI - capability to act) 2. Qualitative assessment of the availability of adequate space to conduct appropriate research (CDI - capability to act) 3. Qualitative assessment of the adequacy of the research infrastructure vis-à-vis the staff's technical expertise (CDI capability to act)	X	X	X			X	X
	To what extent did the project improve the extension capacities of the Department of Biology/College of Natural Sciences?	Extension Services	1. Qualitative assessment of networking activities provided to the project's stakeholders 2. Qualitative assessment of the abilities to network and communicate with regard to informing stakeholders in the intervention region (CDI- capability to relate) 3. Qualitative assessment of network activity with stakeholders in the intervention region (CDI - capability to relate)	X	X	X		X	X	X

Evaluation Criteria	Evaluation Question	Analytical Focus	Indicators and/ or Descriptors	Sources of Verification							
				Interviews with ETH Dean/ Vice-Rector	Group Interviews with ETH Local Promotor/Co-Promotor	Interviews / Focus Groups with ETH Indirect Beneficiaries	Interviews with External Stakeholders	Interview / Workshop with Target Group Representatives	Interviews with Belgian Promoters / Project Team Members	Secondary Data Sources	
Effectiveness	To what extent did the project develop new knowledge and technologies, which was taken up by early adopters?	Land and Water Management	1. Existence of funded research projects that took up / were based / motivated on the VLIR-UOS project results / insights 2. Qualitative assessment of new technologies, products and methods that were created by the VLIR-UOS project 3. Number of early adopters, which adopted the new knowledge/ technology, differentiated by a) Park Management b) Fishery Associations		X		X		X	X	
	To what extent are the observed results in line with the developed Theory of Change?	Sequence and Timing	1. Qualitative assessment of the sequence of impacts foreseen in the Theory of Change 2. Qualitative assessment of the timeliness of the observed impacts		X			X	X	X	
	Which causal mechanisms support the underlying Theory of Change?	Plausibility of the Theory of Change	This evaluation question will be answered through the synthesis of the evaluation results.								
	What were necessary and sufficient conditions for the intended impact?	Conditions for Impact	This evaluation question will be answered through the synthesis of the evaluation results.								
	What other internal or external factors could explain the observed impact?	Factors	This evaluation question will be answered through the synthesis of the evaluation results.								
Impacts	To what extent did the project contribute to establishing a group of specialised researchers on water and land management?	Academic impact	1. Ethiopian partner organisations are applying the newly gained knowledge, tools and databases regarding a) land-use b) water management c) conservation planning	X	X		X		X	X	
	To what extent did the project contribute to improve decision making on land-use and conservation planning resulting in a more sustainable land and water management?	Development impact	1. Qualitative assessment of the Ethiopian partner organisation / stakeholders on a) number of use cases b) impact on decision-making		X	X	X	X	X	X	
	To what extent have there been synergies between different interventions of VLIR-UOS which strengthened the observed impact?	Portfolio Approach	1. Qualitative description of observed synergies between the project and other VLIR-UOS interventions, in terms of a) Timing b) Content		X				X	X	
	To what extent have there been unintended positive or negative impacts?	Unintended Impacts	This evaluation question will be answered through the synthesis of the evaluation results.								

Evaluation Criteria	Evaluation Question	Analytical Focus	Indicators and/ or Descriptors	Sources of Verification						
				Interviews with ETH Dean/ Vice-Rector	Group Interviews with ETH Local Promotor/Co-Promotor	Interviews / Focus Groups with ETH Indirect Beneficiaries	Interviews with External Stakeholders	Interview / Workshop with Target Group Representatives	Interviews with Belgian Promoters / Project Team Members	Secondary Data Sources
Sustainability	To what extent has the project led to sustainable results?	Institutional Sustainability	1. Qualitative assessment of the institutionalisation of the changes initiated by the project at the College of Natural Science, into <ol style="list-style-type: none"> research strategies research activities research extension services 2. Qualitative assessment of the number of staff available for continued implementation of the changes initiated by the project differentiated by <ol style="list-style-type: none"> number of available staff number of staff who left for employment elsewhere number of current vacancies 3. Number of staff members continue to perform tasks for which they were trained	X	X		X		X	X
		Technical Sustainability	1. Qualitative assessment of user rates of upgraded equipment and laboratories 2. Qualitative assessment of the adequacy of the amount of technical staff available for use and maintenance of upgraded equipment and laboratories	X	X				X	X
	To what extent did the project initiate a sustainable partnership between the participating universities?	Sustainability of Partnerships	1. Number of interventions in which the College of Natural Sciences of AMU and at least one Belgian project partners are still working together, differentiated by <ol style="list-style-type: none"> Funded projects by VLIR-UOS Self-financed projects Funded projects by other stakeholders 2. Number of spin-off projects which can be directly attributed to the project	X	X				X	X

A.6 Data collection instruments

See additional documents (zip file)