

SP14: Sustainable Capacity Building in Research

Project partners:

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I. Objectives

Output 6, the capacity building chapter of the HORTINLEA proposal, supports researchers in acquiring the knowledge and skills necessary for planning, conducting, publishing and evaluating quality research. The researchers are able to apply problem based, interdisciplinary and participatory research approaches. This output will also promote the integration of East-African research into the international science community.

a. Overall aim and objectives of the sub-project

To be sustainable, the support is twofold. Researchers will have improved their innovative and analytical capacities and are able to

- strategically pursue a professional career in research and development cooperation as well as
- maintain a professional network in a sustainable manner.

This output aims at enhancing the research capacities of the partner scientists and young researchers from the partner countries' institutions to identify and solve central problems related to the food and nutrition systems in Africa with specific regard to vegetable value chains, thereby supporting the development of local solutions to food security problems.

Capacity building in a more specific context does not only imply enhancing the ability to do research, but equally entails various skills which go along with the particular academic and professional knowledge acquisition. It is therefore required to assess and support not only the purely academic performance, but also the various activities to carry out research and manage research activities as well as to strategically pursue a professional career.

b. Relevance of sub-project to the objectives of the project (main output)

Capacity building and research partnerships are the core objectives of the overall project to enhance knowledge development and innovation within the horticultural sector (output 6). Due to a large amount of teaching obligations, scientists from many African partner universities are more qualified in training than in conducting research and therefore tend to not sufficiently update their own knowledge in scientific development. Consequently, enhancing knowledge development and increase general research performance in the GlobeE partner universities and think tanks is one of the major requirements. The often highly motivated staff or university graduates require not only further qualification but also the possibility to network with in-country partners and those from abroad.

c. Research and/or technical goals of the intervention

A number of categories define the capacity development subproject proposal. Besides professional knowledge and capacity development on how to carry out specific research activities, research management capacities are targeted. In addition, today's research requirements are such that the personality and the interpersonal skills of a researcher are of major importance for professional success. This is the second important block of capacity building activities. The researchers shall not only be enabled to perform their specific research duties, but it is expected that they are able to manage other researchers and communicate efficiently and effectively with the research community in order to obtain funding for further enhancing their specific research topics in the future.

II. State of knowledge

“Capacity building” in development is a term coined by the United Nations (UNDP) where human development was an important development objective since the early 1970s and later supported by Nobel laureate Amartya Sen’s “capability approach”.

Under chapter V, the Economic and Social Council of the UN (2006) defines capacity building as a “long-term continual process of development that involves all stakeholders; including ministries, local authorities, non-governmental organizations, professionals, community members, academics and more. A fundamental goal of capacity-building is to enhance the ability to evaluate and address the crucial questions related to policy choices and modes of implementation among development options, based on an understanding of environment potentials and limits and of needs perceived by the people of the country concerned.” The UNDP outlines that capacity building takes place on an individual level, an institutional level and on a societal level.

Severe cuts in government spending by numerous African governments, in particular during the time of structural adjustment during the 1990s have brought institutions of higher education and research into a steep decline. In many countries posts were cut and virtually no recruitment took place throughout the 1990s. In addition, scientists’ salaries were cut or decreased due to inflation. This led to a significant brain drain of scientists from the continent at extremely high costs to the universities which do not benefit from the migrants’ remittances. Consequently, in some countries, foreign “aid” to science and technology contributed almost three quarters or more to the total national research budget (Gaillard/Krishna/Waast 1997). Public expenditure per student has declined by 30% over the past 15 years (UNESCO 2009) and has an adverse impact on quality. Only Kenya and South Africa have significant student loan programs.

Sub-Saharan Africa has fallen behind quite dramatically from 1% in 1987 to 0.7% in 1996 in science publications. All of Africa has lost 11% of its share in global science since its peak in 1987; Sub-Saharan science has lost almost a third (31%) while countries in Northern Africa have shown a modest growth. One additional reason why sub-Saharan Africa’s share is in such a decline can be attributed to discarding African journals from the citation indexes. Notably, the number of South African journals dropped from 35 to 19 during the years 1993-2004 (Tijssen 2007).

UNESCO’s latest Science Report (2005) lists the number of African scientist as 1.1% of all world scientists in 2002 of which half is accounted for by South Africa. The continent counts exactly 73.2 researchers per one million of inhabitants, compared to 2440 in the EU and 4280 in North America. In Asia the relation is 555 scientists per million inhabitants. Looking only at sub-Saharan Africa, this number is even lower at 48 scientists. In no other part of the world is this proportion so low.

According to UNESCO, the number of African publications is likewise extremely low at 1.4% of world publications (2001). More unfortunate, this number has decreased from 1.6 to 1.4% over 10 years. This is not so much a decrease in total publication numbers in Africa, but rather due to a worldwide increase in publications from approx 450 000 to almost 600 000 between 1991 and 2001 (UNESCO 2005, p.9).

While average tertiary enrollment in high-income countries is around 70%, it varies between 1 and 9% in sub-Saharan Africa (Niger 1%, Senegal 8% Ghana 9% in 2009) (World Bank 2009).

On the other hand, tertiary school enrollment has tripled from 2.7 to 9.3 million between 1991 and 2006 at an annual increase of 16% (UNESCO 2009). Thus, the manifested interest in tertiary education by African students can be further supported through capacity building of

young graduates to become researchers and improve the situation of research and technology development in the partner countries.

III. Detailed description of work plan

The workplan includes:

- The professional development of GlobE researchers
- Support of networking and the establishment of infrastructures for a sustainable research cooperation

SUB-PROJECT 14-1:

Professional development of GlobE researchers

The most important research related feature of this subproject is the mentoring of young researchers by experienced researchers from both German and project partner institutions. Mentoring is the key to guiding a mentee through the overall research process.

In addition, a graduate school will not only give researchers a forum for sharing their specific research progress with fellow researchers, but will also propose training of skills that are equally required to sustain a young researcher's career today. These skills include research planning, research proposal writing, oral presentation, scientific writing, teamwork, team management including visual teams, science management, third-party funds controlling and management, ethics in natural sciences, patent law and others.

Individual researchers might require very specific individual support such as laboratory skills, learning new methods (such as modelling or to operate new equipment) and installations. Special individual courses will complement the soft skills training listed above.

The following measures are envisaged for about 30 PhD students:

1. Support to mentoring (travel) by mentors from German and/or partner institutions
2. Graduate school (one school per year)
3. Support for specific professional courses (course fees and travel of individuals)

SUB-PROJECT 14-2:

Networking and infrastructures for sustainable research cooperation

Besides research and research management capacity building, the linkages between scientists and practitioners through knowledge-sharing networks are of great importance. In Germany, networks established between different actors such as science parks, technology-transfer offices, consultants, and investment companies are an essential part of science and technology. The need for analogous institutions and networks is even greater in developing countries. Long-term relationships between institutions with different sets of skills can help national scientists enlarge their capacities and build on their strengths to identify strategic needs over time.

Therefore, the second sub-project of professional development is networking with the research- and the overall stakeholder- community through various instruments. In detail the following measures are envisaged:

1. Establishment of an internet platform
2. Methodological platform to share methods and technical equipment across subprojects
3. Kosmos Summer University bringing together project researchers with top-level international researchers in form of a summer school

4. Annual stakeholder meetings
5. Support of field days in the different subprojects
6. Support of researchers to participate in conferences of their specific topic
7. The development of an alumni network

Since many capacity building activities lack standard quality assurance processes at the design stage, and capacity building interventions are not routinely tracked, monitored, and evaluated this is planned to be an important activity in the frame of this subproject.

b. Planned milestones of the intervention

| Activity | Milestone | Timeframe | Responsible partner |
|---|--|--|----------------------------|
| CB1: To establish communication amongst partner universities to facilitate the exchange of ideas and expectations for a monitoring system | Monitoring system is developed and criteria communicated | 01/2013 - 03/2013 | LUH |
| CB2: To announce calls for applications for PhD candidates for respective universities and initiation of selection process | Incoming PhDs are interviewed to establish profiles for empowerment | 03/2013 - 06/2016 | LUH |
| CB3: To assemble necessary information by designated partner university in charge of the creation of the internet platform from other partner universities and incorporate all aspects into an inclusive platform | Internet platform established | 01/2013 - 03/2013 | LUH |
| CB4: To evaluate required capacity building upon selection of PhDs, and identify appropriate location(s) and instructors for summer school programs | Graduate summer school organized regularly | 01/2013 - 07/2017, organized once a year | LUH |
| CB5: To foster skills of young researchers for planning, implementing and evaluating quality research in a sustainable manner | Young researchers have received training in management tasks such proposal writing and research tasks, in particular, participatory, interdisciplinary and problem-based methods | 01/2013- 06/2016 | LUH |
| CB6: To promote young researchers participation in international research conferences | Each researcher has participated at least in one international conference | 01/2015- 07/2017 | LUH |
| CB7: To assemble information acquired through established monitoring system to assess development of researchers' capacities | Evaluation of empowerment during the research process and at the end of project | 06/2013- 06/2017 | LUH |

IV. Utilization of results (Uptake)

The results of this subproject should be the successful outcome of the planned research activities, not only in form of master and doctoral thesis, but also in form of innovations which can be utilized by practitioners or the research community.

A major requirement to reach the set objective is a careful design and implementation of the capacity building activities including the development of indicators on how to measure the outcome of this subproject and its individual measures.

Consequently, participants of the project who are subject to capacity building will be interviewed before and after the implementation of the capacity building activities and key indicators in the area of capacity building will be included at the onset of the subproject.

V. Cooperation with other subprojects/cooperation with third parties

Cooperation is a major feature of this subproject. Every researcher is fully integrated not only in her or his home institution, but also mentored from a scientist of the partner institution either in Germany or vice-versa the partner countries. Due to this set-up young researchers belong to several professional working groups. In addition, each researcher has the opportunity to liaise with research groups working in similar fields through the participation in specific training events or congresses and workshops.

The overall group of researchers of this program will have the opportunity to be part of a graduate school which offers trainings in related fields or overall thematic areas. Consequently, this subproject "capacity building" cooperates with all other subprojects as well as with third parties which can be training institutions as well as individual scientist.