SUSTAINABLE HEALTH INFORMATICS MASTER PROGRAMMES IN LOW AND MIDDLE INCOME COUNTRIES

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We present the process, outcomes and lessons learnt in sustaining Master Programmes implemented across a number of low and middle-income countries in collaboration with the University of Oslo (UiO) where the Health Information System Programme (HISP) is hosted. UiO has been engaged in supporting health information systems in developing countries for two decades. One necessary component has been educating health informatics specialists, of which research education was deemed necessary. This led to introduction of 9 Master programmes in 6 countries between 2001–2014 as shown in the table below in chronological order of establishment:

University of Western Cape, South Africa	Public Health	
Universidade Eduardo Mondlane, Mozambique	Public Health	Informatics
University of Dar Es Salaam, Tanzania	Health Informatics	
Addis Ababa University, Ethiopia	Health Informatics	
Gondar University, Ethiopia	Public Health	
University of Malawi	Public Health	Informatics
Colombo University, Sri Lanka	Health Informatics	

THE PROCESS: STRATEGIES AND CHALLENGES

The programmes have gone through three stages: 1) planning and application for funds; 2) implementation with project funding; 3) continued implementation after project closure. The three stages and the assessment of programme outcomes were guided by the Collaborative Governance Model.[i]

1. STRATEGY FOR BUILDING LOCAL COMPETENCE

A strategy was devised to have lecturers from UiO and other partners teaching and supervising in the programmes together with local lecturers at the start of Stage 2 and phasing out the international support when the local lecturers could take over. Some lecturers from the partner universities would at the same time be enrolled in PhD studies at UiO to build their capacity. A number of thesis supervisors were recruited from local organisations to reduce the burden of the faculty members and to broaden the scope of topics. This plan worked until there were local lecturers with sufficient background to take over the courses. In some instances, the locals were not up to it, and these course modules were thus abandoned in Stage 3.

2. CHALLENGES

The planning Stage (1) encountered two main challenges; lack of local competence to run the programmes, and challenge with funding after the initial support ceased. In Stage 2, two other challenges surfaced; where it was noted that students were not having time for thesis work and another hiccup was the locals being overburdened by both trying to teach in the master programme whilst doing their own PhD. Since teaching is a short horizon activity, this was often prioritized, and the PhD was consequently delayed. Fortunately, UiO could extend their PhD scholarship (Norwegian State Educational Loan Fund rates, not salaries) until they completed. When Stage 3 arrived, enough local competence had been built to continue the teaching. UiO staff have contributed in supervising a few master students of mutual interest in Stage 3.

3. SUSTAINED FUNDING

The initial funding covered salaries for partner university staff, scholarships for 4-8 students per cohort and running costs, including UiO staff travels. The partner universities needed 15-20 tuition fee paying students

per cohort for sustainable funding in Stage 3. To achieve sufficient number of applicants, the partner universities had a deliberate strategy where they announced the programmes with tuition fees from the start of the project. The number of applicants were around twice the number of scholarships, hence the universities received additional income from the start of Stage 2. The students and graduates spread information about the programmes through word of mouth, and this has secured the number of fee paying students after the initial funding ceased.

4. FULL TIME WORKING STUDENTS

Nearly all students enrolled work full time, and have immediate and extended families take care of. Coursework force most of them into a structured setting such that they pass their exams. Finding time needed for concentrating on thesis writing has been difficult and impossible for some students. Completion time is therefore extended in some cases up to four years and a significant portion of the students only end up with a diploma confirming their coursework. One way of improving completion has been to organize one week thesis workshops where the students work intensively, discuss with each other and with supervisors. Additional retreats are organized for female students as they have more burden and less time to work at home. This has sparked some dormant students to resume their thesis work. Another, more costly measure has been to provide students who do thesis of interest for UiO and have completed their data collection with 2-3 months of scholarship and bring them to UiO for writing up. This has worked successfully.

5. OUTCOMES AND IMPACTS

More than 500 students have graduated and the programmes have impacted education, research and development in several ways which include:

Internal academic strengthening. Local lecturers in the collaborating universities have attended the programmes, thus advancing their careers. To becoming formal master supervisors, UiO have graduated 16 PhD students now working in the universities, with more in the pipeline, boosting the academic production and career in the collaborating partner institutions. Many graduates have also become lecturers at other local universities.

Internal development team strengthening. Master students and graduates have been offered technical positions in the universities, carrying out development work for local partners. For example, the University of Dar es Salaam (UDSM) currently has a group of 15 technicians working with development work for the Tanzania Ministry of Health and local development partners. UiO has for more than a decade developed software for health information systems called DHIS2. The project staff at UDSM have become the strongest DHIS2 development group outside of UiO.

UiO research students. More than 50 Master and PhD students from UiO have done field work for their theses with local supervisors from the collaborating universities. E.g. seven master and one PhD student carried out experiments in Malawi in 2017, involving three local supervisors, all with PhDs from UiO.

Local collaborations. Staff at local industry, government and NGOs have enrolled in the programme, opening for collaboration. E.g., students at University of Malawi are working in the Ministry, easing R&D from the university in the national health information system and enabling project funding from UNICEF into the university.

Regional cooperation. Some lecturers from other universities with master programmes have taught in the universities in the region. While this exchange stopped after initial funding ceased, R&D collaboration is still ongoing.

International collaboration. The strong ties between UiO and the master programme universities have enabled other funding for joint R&D, and this has taken place for all partner universities. Funders include EU, Norwegian Research Council, Research Council of South Africa, NORAD, The Global Fund to Fight AIDS, Tuberculosis and Malaria, The President's Emergency Plan For AIDS Relief, UNICEF, Bill and Melinda Gates Foundation.

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[i] Ansell & Gash: Collaborative Governance in Theory and Practice. Journal of Public Administration Research and Theory. 18, 4, 2008, 543–571