

# Moving from theory-based to competency-based practice at Agricultural Colleges in Ghana

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## *Overview*

The government of Ghana, through the Pre-Tertiary Education Bill of 2019, is taking steps to migrate all TVET and ATVET institutions in the country to the Ministry of Education, and for these to be supervised and accredited by the Council for Technical Vocational Education and Training (COTVET), and to ensure that all TVET education is competency based – including agricultural TVET (ATVET).

The Nuffic NICHE-GHA-270 project ‘Capacity Building of Four Agricultural Colleges’ is designed to strengthen the four main Agricultural Colleges in Ghana: Kwadaso, Damongo, Ejura and Ohawu. Kwadaso is the lead Agricultural College for the project, which is also supported through collaboration with CINOP, Q-point and University of Applied Sciences (HAS) from the Netherlands, and Kwame Nkrumah University of Science and Technology (KNUST), Quente Africa and the University of Cape Coast (UCC), in Ghana.

Until now, the four Colleges have been affiliated to the University of Cape Coast and accredited by the National Accreditation Board (NAB) and required to meet UCC and NAB requirements, which are more “theory-based”, rather than those of COTVET and a more “competency-based education and training” (CBET) approach. The project has resulted in the successful revision of the curriculum of the Diploma program from a more theory-based curriculum to a more gender sensitive, practical and competency-based education and training (CBET) curriculum that is changing the face of the agricultural colleges in Ghana. While these colleges are not yet running fully CBET programs, due to their UCC and NAB affiliation and standards, the steps taken in the revised curriculum (2019) represent an advance in this direction. The current programmes at the colleges can therefore be described as a ‘blend’ of CBET and the traditional theory-based education, while making efforts towards becoming fully CBET institutions.

## *CBET in Ghanaian ATVETs*

By CBET, we mean here a system of training where capacities of the trainees are built to make them more competent and hands-on in their work. The CBET training puts the trainees at the center of the learning by giving them the freedom to pick and choose what they want to learn and how they want it done through supervision by CBET-accredited professionals and institutions. This helps ignite the creativity, inspiration and enthusiasm of the learners, because learning is seen as pleasurable and meets felt needs and career aspirations.

For example, in the Agribusiness, Entrepreneurship and Value Chain classes, learners choose the kind of task they would like to carry out for the semester, writing business plans to reflect their ideas and timelines for achieving their objectives. Tutors facilitate and support this process by assisting the students to achieve their learning objectives using best practices as described in the curriculum course learning outcomes and objectives.

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Assessment is a blend of written exams and practice assessments. This process makes a change from the previously dominant theory-based learning, where a strict course outline is developed with accompanying lecture notes and designated (“straight-jacket”) assignments which students have to follow and or memorize in order to pass a written exam.

### *Revision of the Diploma curriculum*

To kick-start the revision of the Diploma curriculum, and also to achieve the buy-in of UCC as the affiliate university of the Diploma program, – which does not itself practice CBET per se - a number of CBET and gender sensitization workshops were organized for major stakeholders, to bring them up to speed on the nature and benefits of CBET. These stakeholders included staff of the UCC School of Agriculture, the Ministry of Food and Agriculture (MoFA), and the Colleges as well as the Farm Institutes. UCC and the other stakeholders were actively involved in all curriculum development processes, including a labour market analysis leading to the determination of occupational standards, curriculum development, validation and module development. The outcome of the revised curriculum is a blended one as it still has certain elements of theory, blended with practical activities (towards CBET). This was necessary to meet the standards of both UCC and NAB whilst also aspiring gradually towards CBET.

Among the challenges encountered during this process were that COTVET played virtually no role in the process, except its participation in the validation exercise, due to the fact that the Colleges have not been weaned completely from NAB to COTVET yet. Again, as Colleges under NAB, efforts to involve COTVET in the processes were met with some resistance and not successful as they indicated that the approach adopted does not completely meet their CBET curriculum review standards. Another challenge was that most of the Colleges do not have the required facilities and systems in place to gain COTVET accreditation for full CBET implementation, and not even the entire investment component of the project is sufficient to address this challenge; additional efforts and support will be required.

In addition, the curriculum was not revised along value chains, as has been promoted by GIZ in other ATVET projects in Ghana and adopted by COTVET. The new Diploma curriculum is still a ‘Diploma in General Agriculture’ and hence more “generic” than ones based on specific value chains. It has however, lots of built in practical, assignments and cases to make it more hands-on. From the labour market analysis conducted, the demand for graduates specialized in specific value chains is not yet well developed, and most prospective students prefer to pursue programme of a generic nature in order to increase their scope for job opportunity across the employment spectrum. The value-chain oriented curricula also have the disadvantage that, it does not readily create room for academic progression along the national qualifications framework (NQF) and hence students who graduate from such value chain courses usually get stuck whenever they wish to climb the academic ladder to the next level. For instance, the admissions requirements for the Diploma program does not make room for graduates with a specific value chain course Certificate. A lot more needs to be done to address this challenge

### *Building staff capacity in CBET*

Through the collaboration with the NICHE-GHA-270 project and using a blend of local and Dutch expertise from CINOP Global, Q-point and HAS, the capacities of staff at the colleges have been strengthened in areas such as gender mainstreaming in agricultural production, competency-based training and education, value chain development, entrepreneurship and

business creation. Through collaboration with local universities such as KNUST, selected staff members from the ATVET colleges have been trained to MSc and PHD levels to meet the requirements of the National Council for Tertiary Education in Ghana. While these universities do not use a CBET approach (but follow NAB regulations), staff in a Diploma awarding college are required to have an MSc as a minimum qualification. Therefore, in order to build the capacity of the staff in the CBET approach, the staff were encouraged to undergo practical internships in addition to participation in short term CBET workshops and trainings.

As a result of the curriculum revision and staff capacity strengthening, teaching and learning in the Colleges is now more practical and hands-on than before. One of the principles of CBET is to limit class size to enhance facilitation of practical lessons; however, with the current large class sizes (average of 150 students per class), the strategies adopted include division of the classes into groups or mini-classes of 10 – 15 persons for practical lessons, with extra time in the revised curriculum for practical work and self-study.

### *Introducing entrepreneurship*

The project has also turned the Colleges into entrepreneurial centres, with support offered in terms of training and finance by the NICHE-GHA-270 project leading to establishment of on-campus income generating activities such as aquaculture, poultry and other agro-processing businesses. These income generating activities not only generate extra cash for the Colleges but also serve as sources of inspiration and practical training hubs for the students, as they are fully involved in all operations of these campus businesses. At Kwadaso Agricultural College for instance, the project has supported the College to raise 1,000 poultry layers, with the College collecting not less than 20 crates of eggs per day and generating a revenue equivalent to about 1,300 Euros per month. Additionally, a mini concrete pond with a capacity of some 1,000 catfish also generates income.

To make full use of the Home Science Department at Kwadaso, and also the staff that attended the Food Processing internship at CSIR/FRI, food processing equipment has been procured for the College, including juice extractors. The intention is to pay more attention to the agro-processing aspects of the value chain which is also important for curriculum implementation. To facilitate sales of these College-produced agro-products (eggs, fish, fruit juice and vegetables), the project has also funded the construction of a “Green Market” – a container shop located at the entrance to the College.

In all these enterprises, students are actively involved in production operations (feeding, medication, records keeping and other routine operations). Unfortunately, the agro-processing unit is yet to fully become operational due to closure of the schools as a result of the Covid-19 pandemic. When the Green Market is fully operational, a student committee will be established, with responsibility for processing and sales activities, under the supervision of a staff member.

### *Staff practical internships*

To build staff capacity for practical activities, and to inspire the staff to embrace CBET concepts, the NICHE-GHA-270 project also assisted the staff at the Colleges to undertake industrial /practical internships (workplace experience learning). Placements have been arranged with public and private organizations such as private agro firms, the Council for Scientific and Industrial Research (CSIR), the Ministry of Food and Agriculture (MoFA)

Veterinary Directorate and Topman Farms to enable staff to meet the practical demands of the revised Curriculum. These internship opportunities not only build practical skills of the tutors but have also led to strengthening the relationships between the Colleges and industry, with mutual benefits of skills and technology transfer and research innovations etc.

For example, two staff members from Kwadaso, one from Ejura, one from Ohawu and another from Damongo Agricultural College, respectively, underwent a one-month intensive practical training at CSIR Crops and Soil Research Institutes. During this period, the staff were not required to report to duty / work in the Colleges, but were taken through practical lessons including vegetables cultivation greenhouse management, laboratory practice, soil sampling and testing, field crop production and management protocols etc.

Similarly, two staff from Kwadaso, two from Ohawu and one each from Ejura and Damongo were also sent to CSIR – Food Research Institute for training in food and agro-processing. However, in this case the practical training was limited to one week due to the Covid-19 challenges. Even in one week however, the staff members were taken through food safety and handling protocols and practiced processing and packaging of dried fruits and fruit juice production, pasteurization, bottling and labelling.

Two staff members from Damongo and one from Kwadaso Agricultural College respectively, were sent to Topman Farms, one of the major commercial poultry farms in Ghana. During the five weeks of practice and lessons, they practiced artificial insemination of poultry birds, egg selection and sorting for hatchery and hatchery practices and management, brooding practices and management, farm records and book-keeping etc. One of the beneficiary tutors, Mary Badu, stated “As a tutor, I have learned a lot that I did not know to do in practice, so this time when I go back to my College, I will be able to teach my students better by getting them to practice artificial insemination as I have learned here”. Another staff member (Tahiru Ibrahim), from Ejura Agricultural College, was sent to a private agricultural mechanization services provision centre at Atebubu to practice routine minor maintenance and operation of farm machinery and implements. Kumah Farms, an aquaculture farm was also identified for staff work experience, and negotiations are now complete and so staff can be sent there during the next semester breaks.

The College management were not left out, as Kwadaso had its administrator sent to Ghana Institute of Management and Public Administration (GIMPA) to undergo training in personnel and office management and best practices. A driver and a machine operator at Kwadaso were also sent to a private firm (Bethel Training and Consultancy Services) to undergo safe machinery operations and road safety training. These trainings are necessary as these personnel are technical and administrative staff who offer support services to the teaching staff in management of student groups and assignments.

Out of a total of 20 staff trained for internships and work-place experience placements, about 30% have been trained by the private sector, whereas 70% were located at public institutions. Private sector organizations usually prefer interns to be attached for a longer period than the 4-6 weeks normally proposed, and, in addition, the recent Covid-19 pandemic has resulted in a reluctance of private companies to take on more people when they are reducing their own labour force.

Apart from the administrator whose training was mainly administrative, all the other placements, including teaching and non-teaching (supporting staff), were trained

technically. It is also important to mention that the staff were not financially compensated for participating in the training (beyond their normal salaries) but were supported in the training in terms of transportation cost, accommodation and contingencies. Training costs (fees) were also an issue particularly in the public sector, which is challenged to find materials and consumables for trainee's use due to budget constraints; the private sector firms are less concerned about payment for training as they consider the labour provided by the interns as compensation for use of training consumables.

The attachment of the staff to these firms was noted to have mutual benefits especially to the private firms. One manager at Topman Farms mentioned during a monitoring exercise that "they are not only learning from us; we are also learning so much from them. They sometimes give us the theory behind the practices we undertake, and we are very happy to have them". They also indicated that it is their first-time to have teaching staff visit their companies to do internships.

These staff internships have opened the doors for increased collaboration, including short-term and long-term training of the industries concerned. As an example, MoUs providing internships for students as well as staff placements are currently being drafted between Kwadaso College and Topman farms, and with other organizations and firms such as Akate Farms, Asare Farms, MoFA, Cocobod, although the process is often slower than anticipated. Efforts are being made with other companies such as Blue Skies (a fruit processing company) to establish collaborative activities.