

Terms of Reference for the development of an Administration System and MIS for Folk Development Colleges and the MoEST in Tanzania

October 2022

1 Background and Context

The Skills for Employment Tanzania (SET) is a Swiss Development Corporation (SDC) supported programme implemented in Tanzania. SET is a 12-year project funded by the Swiss Agency for Development and Cooperation (SDC) and implemented in Tanzania which started in August 2018 and end in 2030. The current phase (SET II) has started on the 1 July and will end on 30 June 2026.

The overall project goal for SET across all phases is:

“Improve the prospects of gainful youth (self-) employment through a contribution to improved access, relevance, and quality of Vocational Skills Development (VSD)”

The three project outcomes for the SET II each reflecting one project component are as follows:

- ◆ **Outcome 1:** Improved collection and analysis of labour market and skills needs, involving private sector, workplace practitioners and other labour market stakeholders, leading to improved, relevant and flexible VSD curricula
- ◆ **Outcome 2:** Improved motivation and adaptive teaching techniques and teaching environment allows for improved delivery of non-formal and formal programmes and training throughout the network of FDCs
- ◆ **Outcome 3:** Increased access of youth, and young mothers, to relevant non-formal VSD

The task of this proposed contract is part of outcome 2 of SET II, which support the network of FDCs in improving their teaching and learning system through Continuing Professional Development (CPD).

The Folk Development Colleges (FDCs) are an important public training provider network which provides both the formal government-certificated VETA curriculum, an FDC-certificated programme of the same curriculum, and short, non-formal vocational skills development (VSD) courses. Non-formal VSD operates with curricular flexibility, some of which is cost-recovery, allowing tailored skills development interventions to diverse target groups, including those without access to formal education and training. In 2020/21, 15,032 students were recorded in the FDC network.

FDCs provide a significant resource for skills development of youth with lower education. Whereas VETA schools are mostly only accessible to those who completed and pass secondary education, the network of 54 FDCs, established by Julius Nyerere in 1975 to support community skills development, works with youth who only achieved primary standard 7 and lower secondary school (form 4). The FDCs are located in rural and semi-rural areas throughout Tanzania, and some have begun to attach production units to core programmes to increase institutional income. The income from short courses and sales has allowed the Colleges to provide properly resourced practical skills acquisition for a limited number of students and skills through adequate provision of equipment and consumables for training.

However, FDCs face a number of challenges, one of which is the **lack of a unified and comprehensive administration system and management information system**, which is to be addressed by these terms of reference.

2 Overview of the Task

2.1 Outcomes

As part of its support to the FDC network, and MoEST management of this network, the SET Phase II has agreed to provide technical and material inputs into two major network developments:

- ◆ Appropriate, low maintenance, and sustainable computerisation of FDC administration procedures ('FDC Admin System'), and a centralised operational MIS for the MoEST TVET Department intended for FDC planning and management ('FDC MIS'), built on outputs from the FDC Admin System;
- ◆ A continuing professional development system involving, over time, all teachers in the FDC network.

These TOR are an element in the development of the FDC Admin System and the FDC MIS. The outcome of this support is expected to assist FDCs in **streamlining their administrative processes, so they are quicker, more accurate, and more useful**. Since almost all of FDC planning and management data will be captured by the FDC Admin system, these data will feed a centralised database, accessible to authorised FDC and MoEST users, but specifically designed for planning, reporting and multi-annual analysis relating to the FDC network.

In general, the *Developer* will be responsible for the software side of the FDC Admin System and FDC MIS, assist in the planning and delivery of the necessary training, and provide time-limited post development support. Development, system equipment, and training costs will largely be covered by the SET project. The MoEST and FDC authorities will authorise system development, endorse organisational and development plans, participate in, and monitor activities, and determine acceptability. The SET project will facilitate and advise where appropriate.

2.2 System development Principles

FDCs have limited budgets, limited staff capacity for managing computerised systems, and limited connectivity. Consequently, the computer-supported administrative improvements need to respect some basic principles.

- ◆ While development costs of these systems will be substantially supported by the SDC-funded SET project, the recurrent costs of operating the system in the FDCs must be minimal.
- ◆ This will require both software choice and hardware maintenance to be developed in such a way as to be understood and manageable by the FDCs themselves without on-going commercial technical support.
- ◆ Similarly, the solutions for the FDC MIS central database and data mining need to respect cost and capacity limitations. Given the nature of database, connectivity, and storage solutions, even open-sourced, this may be a greater challenge, and require more discussion, than with the FDC Admin system.

- ◆ Because this will be a largely locally supported and managed system, the training objective is to ensure that all FDCs implementing the computerised system, even the more remote colleges, have the best possible understanding of system operation and know how to get support if they need it.

These principles need to be reflected in the development proposals. They will be expressed in the software choices, implementing hardware requirements, and the FDC role and participation in the development and training programme.

In addition, it is possible that progress may be made in a similar programme in the network of VETA Colleges, relating to the redevelopment of the VETMIS¹. Consequently, while the FDC Admin System will be specific to FDC operations², it may become expedient, in the interests of non-duplication and efficiency, to merge developments of the sub-sector FDC MIS with that of the VETMIS. It will be necessary to track VETA progress in this area.

3 System Development

Indicatively, it is likely that the development sequence will involve the stages described below. Alternative sequences or steps may be proposed if the following are incomplete in some way. The *Developer* will need to study the elements below and shape them into a costed proposal, including any modifications or enhancements deemed necessary.

3.1 Development stage

The FDCs, under MoEST facilitation, will form an IT Development Group (FDC ITDG) to work with the contracted *Developer* on administrative processes, data requirements, testing and validation, and, subsequently, training and roll-out.

This group will not only be essential for ensuring relevance, accuracy, and validity of the system, but also for ensuring system understanding and ownership necessary for subsequent self-sufficiency in system management. For the development period of the systems, the FDC ITDG will also include representatives of the MoEST and the SET. The *Developer* will need to create a communications protocol with the various parties (MoEST, SET, and FDCs).

3.1.1 Agreement on administrative processes to be computer-assisted.

This will require agreement on data inputs, output forms, and reports for these processes, with attention paid to eventual data database³ design and data interfacing. To do this, a participatory process will be needed, with FDC administrative staff, possible additional consultation with teaching staff, and non-teaching staff in collaboration with the FDC ITDG. Probably, several field visits will be needed in order to be clear about the environment of operation, and the use-cases for FDC business process (Administration processes).

During the course of this operation, FDCs and the *Developer* will need to ascertain where capacity and infrastructure weaknesses appear to be. The SET project has committed to

¹ VETA reports government approval of a budget for internal development of VETMIS. However, actual allocation of an adequate budget, and availability of the expertise to make the system need to be tracked.

² The FDC Admin and FDC MIS will follow FDC business process as per FDC Administrative Framework, and curriculum.

³ Sub-sector level data may require additional information that College-level administration does not explicitly need. This has to be catered for.

providing a set of equipment for each FDC, and the MoEST, to be used specifically to operate the systems⁴. However, it is possible that the circumstances of a few FDCs may require a completely or largely manual (paper-based) version of the system⁵.

3.1.2 Computer system development for the FDC Administration System (FDC Admin)

Based on the outcomes of the FDC business processes and data content scoping, system software development options can be discussed and agreed with stakeholders. In keeping with the cost, capacity, and sustainability principles, this is likely to result in an Excel-based suite⁶ of tools encompassing the administrative procedures required, the needed output forms, and data reports. It will need to include aggregation and export functions for the centralised database. Solutions will also be needed for managing data year-on-year, multi-annual queries and reports⁷, summary dashboards, backup, archiving and storing data, reducing paper input or output forms⁸, and adequate security within the limitations of basic software solutions.

As far as possible, programming within the FDC Admin System (e.g., VBA in Excel) would need to be avoided since it could result in aspects of the system which are too complex to FDC IT staff who will need to maintain the system subsequently⁹.

Consultation with the MoEST Department of TVET will also be needed to check whether the data inputs for the FDC Admin System cover the detailed, aggregated or calculated needs of a sub-sector MIS dataset¹⁰. At this stage, options for how to meet the central database requirements can be formulated for discussion.

Probable operational areas for administrative computerisation are:

- ◆ Student management (enrolment, student records, attendance, progress and achievement, accommodation, etc.),
- ◆ Teacher/Tutor management (individual record, deployment, attendance, performance ...etc.),
- ◆ Infrastructure (buildings, maintenance, inventory ...)
- ◆ Financial (income, expenditure, book-keeping, ...)
- ◆ Data archiving (electronic and paper)
- ◆ Curriculum and courses offered (programme packages, income-generating courses).

⁴ Provisionally, a desktop computer set, printer, UPS, backup storage.

⁵ An questionnaire-based survey of FDC IT capacity has been undertaken and provides a basis for verifying weaknesses revealed by the survey. If an FDC appears to fall below the minimum requirement for computerising admin systems, then remedial capacity actions need to be considered before implementing a paper-based version.

⁶ Attention will be needed to the Excel status and version situation in FDCs. All versions will need to support the non-programmed features used by the developer. This will require recent versions of Excel (eg. with non-VBA input forms). Licensing will be on a 'lifetime' basis, and not subscription, so all features used must be available in non-subscription versions.

⁷ Discussion will be needed as to whether multi-annual data analysis (eg trends, ..) can be a query output of the central MIS and not catered for in the admin system.

⁸ This is likely to involve the following elements: a safe system of electronic data archiving; parallel printing of essential records equivalent to existing paper archiving; agreement on a set of paper and electronic archiving based on MoEST regulations or guidelines.

⁹ The most recent versions of Excel have introduced a range of built-in functions which have replaced the need for VBA in some areas.

¹⁰ It is likely that the central database will require infrastructure (and other) details that the FDC admin system does not capture. Consequently, this data will not be collected unless the MoEST stipulates the need for it.

On the basis of present FDC practice, output form templates to be filled by the system can be identified and incorporated as physical or electronic outputs. It should be noted that the development of computerised support for FDC business processes offers enhancements which are presently not available. These possibilities should be explored with the FDCs.

Because of the principles of simplicity, low or no-cost, and sustainability, based on FDC IT capacity, relational efficiency may need to be compromised¹¹.

3.1.3 Testing and verification

Testing of the computerised solution for the FDC admin system requirements can be expected to cover all design aspects, including input forms, input filtering, error-handling, use-case coverage, data completeness, output forms, report format and layouts, data filters, querying, data backup, and archiving.

To verify if the system fits the capacities of FDCs, it is likely that trialling it with some FDCs hitherto not involved may be needed. It may also be useful to present it – i.e. show how it works – with the support of the FDC ITDG, to a selection of FDCs, for example, those in a complete FDC CPD Zone¹², to get comments and additional suggestions.

Verification applies not only to the computer system aspects, but also to the ease of operation and habits of the operator. Extensive training will take care of most operating challenges, but ease of use is an indicator of appropriateness.

Verification will only apply, at this stage, to the FDC Admin System. However, by this stage, it should be clear whether any progress has been made on the VETMIS development. Whatever the state of VETMIS development, however, the *Developer* will need to have an independent FDC MIS proposal for MIS system and connectivity solutions.

The FDC MIS requirements specification should be presented by the *Developer* during reporting of the FDC Admin System, testing and verification process. This will be discussed with the FDC ITGD, MoEST, and the SET project. When these stakeholders are satisfied that issues have been addressed, the roll-out stage can be undertaken, for the FDC Admin System, and a development of the FDC MIS initiated.

3.2 FDC Admin system roll-out

3.2.1 Rollout plan

The *Developer* will refine the roll-out sequence on the basis of experience gained in the development phase. Indicatively, roll-out would need to take into account the following elements.

- ◆ Agreement with stakeholders on the method of system expansion to all FDCs. This will include agreement on the timing of hardware provision and software rollout¹³, and the method of training FDC system users.

¹¹ i.e. a spreadsheet-based solution rather than a relational table-based one.

¹² These will be provisionally identified up as part of the CPD programme development process in late 2022.

¹³ It is likely that the *Developer* will need to install the FDC Admin system, and other necessary software, on the computer equipment being provided by the SET (as well as backing in up on the storage device provided). This is likely, therefore, to require a programme of equipment installation and checking on-site to be included in the Level 3 training programme (see below).

- ◆ A training strategy which takes into account the levels of training, numbers of trainers and trainees to be involved for each level, the training locations, and training timetable.

The SET project will cover the costs of FDC system user staff time, logistics and training involved in the rollout. The *Developer* will cover its own staff costs and logistics.

3.2.2 Rollout and Maintenance Training

There will be three levels of training need for the FDC Admin System.

- ◆ **Level 1:** training of a core group of FDC IT-competent staff with sufficient aptitude to understand the system sufficiently to troubleshoot, participate in updating/enhancing it if needed, and act as user supporters. These will also be able to act as trainers for wider rollout and will participate in the Level 2 training. As a result, Level 1 training will need to include agreement on system-user documentation, and necessary training manuals and requirements.
- ◆ **Level 2:** training of trainers to conduct the wider training for the selected staff of all FDCs who will administer the system in their colleges. These are likely to comprise the FDC IT Tutors/Teachers, admin and finance staff, as well as ToT for the Level 1 group to strengthen their capacity to train Level 3 staff.
- ◆ **Level 3:** Training, by the Level 2 trainers, of all the selected FDC Admin, finance and other ICT staff (FDC Admin System users at each FDC) nominated by FDCs, covering all FDCs.

The training will be undertaken with the computer equipment provided through the SET project. By Level 3, all sets will be required. Levels 1 and 2 can be done in single groups at a particular location, using the amount of SET equipment needed for the numbers. For Level 3, the larger number of participants will require separate groups at locations accessible to the Colleges involved. The *Developer* will work with the FDC ITDG to specify how this will work in the rollout plan, but it should be costed and indicatively described in the *Developer* system development proposal.

For **Level 1**, the *Developer* will need to design and deliver a technical training programme to create a core technical support team of FCD ICT staff with the aptitude, knowledge and interest to manage the system for the long term. This may be done in parallel with the other training, or even after the system is fully stable. The aim of this training is to provide the core team with the capacity to act as a user support, and to troubleshoot and report software bugs within the FDC and MoEST internetwork (see 3.4 Contractual support below).

For **Level 2**, the *Developer* will collaboratively design a training programme with the core technical team of Level 1, to train additional FDC staff to perform as trainers for Level 3 staff. This will need to include, how to install and physically test the equipment (which will have the software already installed) at each FDC.

The actual Level 2 training of trainers will be shared between *Developer* staff and members of the FDC ITDG.

For **Level 3**, the *Developer* will provide staff to backup training and monitor training quality. Depending on how many locations are involved, and the timing of the training, the *Developer* can agree with the FDC ITDG adequate staff coverage.

Level 3 training will cover all aspects of the FDC Admin system, from equipment installation, maintenance and security, to admin system structure and coverage, data input, error-

handling, outputs (filters, forms and reports), backup, archiving, getting technical assistance, and college-level analysis. Ideally, it should include, by this stage, data export mechanisms for the central database. It is possible that this will not yet have been finalised, however, and may require an additional training session at a later date – probably through the CPD network.

Ideally, the MoEST DTVET staff responsible would attend all levels of training. However, if IT knowledge limitations make Level 1 challenging, Levels 2 and 3 would be sufficient.

An aspect of the Level 3 training should include the inputting of all 2022 data and 2023 data (if it is available). These data will be the baseline of the system. It is not expected that previous years will be input.

3.2.3 System Documentation

Following the training programme, the *Developer*, with the assistance of the FDC ITDG, will consolidate the draft system user document, and successful training materials, and compile them into a simple and accessible package of reference and support documentation.

Within the first six months of operation, post-training, *Developer* backstopping and admin system adjustment is likely to be relatively active. During this period, the system user document can be updated as per user's experience and system upgrades.

3.3 FDC MIS system development

3.3.1 Relationship with other systems

During the development of the FDC Admin System the development situation with VETMIS will become clearer. A number of scenarios may arise with regard to the state of VETMIS, but, by default, the *Developer* will need to make an independent proposal for an FDC MIS requirements specification taking into account the elements described below.

3.3.2 FDC MIS development

The central database will be designed to serve the following needs.

- ◆ The planning and reporting requirements of the MoEST Department of TVET.
- ◆ Government, or publications relating to activities of the FDCs (e.g. websites, news sites).
- ◆ Integration in government education, skills training, or international datasets.

The FDC MIS will be primarily designed for MoEST FDC sub-sector planning and management. However, it should be noted that an MIS will represent an innovation for this sub-sector, and, as such, offers two areas of possibility which are not presently available to the sub-sector, namely;

1. **For the MoEST:** expanded skills-training planning in the FDC network, a capacity to link budgeting to skills-targeting policy, more detailed reporting, and multi-annual analysis. It will also need to allow the MoEST DTVET to supply data needed to meet Education sector EMIS requirements, national statistical data requirements, and Tanzanian government commitments to international data sets.
- ◆ **For individual FDCs:** it can offer a detailed overview of what all FDCs are training for, and in what numbers. This will allow them to share experiences, and expertise.

With the FDC ITDG and SET, the *Developer* will need to ensure that the data output from the FDC Admin system covers the present and potential data requirements of the MoEST and

wider stakeholders, if necessary, supplementing FDC-level data capture to meet central requirements.

At present, the MoEST requires limited data from FDCs. This is largely due to the difficulty and lack of systems to collect field-level data. The development of an FDC Admin system and FDC-MIS will allow for a more complete data picture as indicated above. The MoEST, with SET support and *Developer* participation, will organise a process to determine what outputs are needed for FDC management (esp. budgeting), for TVET sector reporting, for the sector EMIS, and for inclusion in national and international databases. By default, this will be kept as simple as possible. The timing of this process will be agreed relatively early in the FDC system development programme.

3.3.3 FDC MIS technical solution

The FDC MIS solutions for data transfer, data hosting, database software, and data mining will need, as far as possible, to respect the low/no-cost, limited IT capacity, and local maintenance principles described above. However, it is recognised that this presents challenges, and the *Developer* will need to propose solutions, and indicate where and why the principles may require compromise. The basic sustainability criterion is that FDC MIS operation must not depend on uncertain resources or be locked into commercial support.

It is assumed that data transfer/update from FDCs will happen at given intervals, to be agreed¹⁴, and reflect the budget and data calendars of the MoEST. Data will be fixed (i.e. not subject to change, such as address, location, etc.), variable (i.e. may change, such as teacher data), or volatile (i.e. constantly changing, such as enrolment). Preferably, data updating will be automatic, with MoEST supervision and sample verification. Since the data will be exported/updated from the individual FDC Admin System of each College, online data entry need not be provided for, since it is likely to involve cost and may not be feasible for all Colleges¹⁵.

The *Developer* will work with the MoEST DTVET and SET staff, to understand the use-cases, the enhancement possibilities relating to the MIS system, the method of DTVET operational system staffing, and MoEST IT capacity.

This understanding will inform the MIS design and also provide the content for a central level training course for MoEST staff. This may include key FDC staff, who the MoEST may wish to assist them in operating the FDC MIS. The *Developer* will participate and assist the training for the FDC MIS.

3.3.4 FDC MIS documentation

The *Developer*, and FDC MIS users will need to agree on necessary system user-documentation which will mitigate the impact of any MoEST staff turnover and support the induction of new users. It is likely that selected FDC ITDG staff will be called by the MoEST to maintain and support the system for the future. Consequently, user documentation development can involve this team. However, the *Developer* is responsible for ensuring the finalisation of the system user documentation.

¹⁴ Provisionally this will be quarterly, though it could be almost real-time.

¹⁵ This paragraph is subject to *Developer* reassessment according to the solution being proposed. What has to be avoided is further manual data-entry after data enters the FDC Admin system, cost-inducing data entry methods, and repetitive transfer of data already held. It is likely, however, that online data transfer may be feasible, though this may need verification for some colleges.

The language of the user documentation should be agreed with the FDC ITDG. By default, this will be Swahili, with a glossary of English terms as needed.

3.4 Contractual support

Once each system has been tested and the training completed, it will be signed off. From this date the *Developer* will be required to provide backup support as needed for a period of two years. During this period, the FDC ITDG will identify, and record issues, work out a solution where it can, and propose this to the *Developer*¹⁶. The solution will be reviewed and accepted or modified by the *Developer*. In each case, this should be treated as a further training exercise from which the FDC ITDG can benefit. Depending on the severity of the issues, for efficiency reasons, bugs or improvements may be batched and periodically dealt with. The *Developer* will set the processes for controlled updating and rolling out of updates, with the agreement of the FDC ITDG¹⁷. By the end of the two-year period, the FDC ITDG should be in a position to continue maintenance and support on its own.

Should the client (SET and the FDC ITDG) request additional functionality beyond that which has been built into the systems (e.g., an FDC website), a contract amendment can be drawn up with agreed costing. If the FDC ITDG has put together its own enhancements, then, within the two-year support coverage, these can be reviewed by the *Developer*, and, if they would benefit from technical improvement requiring additional time, a supplementary cost can be agreed.

3.5 Timing

This section is subject to update. The external (to the contract) milestones driving system development are:

- ◆ The formation of the FDC ITDG¹⁸ – expected to be achieved by November 1st 2022.
- ◆ The procurement of SET supplied equipment necessary for operating the system in the field – expected to be initiated in November, 2022 with purchase and delivery completed by end 2022.
- ◆ The deployment of FDC and MoEST staff to work with the *Developer* and others – expected to be available by mid-November, 2022.
- ◆ The enrolment period for FDCs for the FDC academic year. The enrolment period is from January to March each year.
- ◆ The deadline for FDC enrolment figures for the 2023 Budget submission (March 31st).

If the *Developer* is operational by mid-November, 2022, ideally the FDC Admin System can be under testing by the end of Q1 2023, if it based on Excel. By Q3-2023, FDC Admin System training can be completed, and also the FDC MIS developed and tested.

The *Developer* will need to propose an indicative development timetable as part of the proposal. Within one month of the contract award, and based on information and discussions during this period, the timetable will be revised with the agreement of the SET and FDC ITDG.

¹⁶ The FDC ITDG will be instructed NOT to alter the system unilaterally themselves itself during this period, in order to avoid further problems.

¹⁷ With such a distributed and decentralised system, it is vital to avoid the proliferation of independently modified versions in different colleges.

¹⁸ Indicatively, of no more than 8 FDC staff.

Where uncertainties persist with regard to the VETMIS situation, a further update may be necessary.

4 Developer Capacity

The *Developer* should be able to offer the following experience, skills, and organisational profile:

- [1] Knowledge of education information systems, common education & TVET datasets, and analytic processes for education and TVET ;
- [2] Familiarity with the environment of TVET institutions in Tanzania, and the probable limitations relating to access and capacity for IT and computer uses ;
- [3] Experience with working with stakeholders to assess system needs and operational capacities, tailor appropriate system solutions, including low-tech where needed ;
- [4] Experience and current expertise in developing such systems, using client interactive approaches, customised/applied commercial and open-source applications in environments with limited resources;
- [5] Experience with training design, and access to proven training capacity ;
- [6] A company profile, supported by the necessary legal operational documents, which provides confidence in continuing existence over the period of the contract.

5 Contractual details

The *Developer* proposal should also include:

- ◆ A company profile, including the details (age, experience, specialisation) of the staff who would be assigned to the task;
- ◆ A work programme based on the information above, supplemented and improved by Developer experience and knowledge¹⁹;
- ◆ A financial proposal, in Tanzanian Shillings, broken down by the deliverables itemised below;
- ◆ The company's legal operations documents including Company profile and registration documents i.e. The certificate of registration; TIN certificate; VAT certificate; Tax clearance certificate and sample of an EFD receipt;

The payment of the fees is subject to receipt and acceptance of deliverables. The deliverables will be the following.

- ◆ Signature of acceptance of tested and verified FDC Admin System.
- ◆ Completion of each level of FDC Admin System training (Levels 1 to 3 as described above), and FDC MIS training.
- ◆ Completed installation of FDC Admin System software on FDC computers to be supplied by SET.
- ◆ Compiled draft-final System documentation and support material agreed by the FDC ITDG post-training (for both the FDC Admin System and FDC MIS).

¹⁹ The work programme is not binding at this stage, and will be subject to discussion and modification.

- ◆ Signature of acceptance of the FDC MIS, including data connection with the FDC Admin System in FDCs, and installation on computers used by MoEST.
- ◆ Completion of the 2-year support/backstopping period post-acceptance.

The *Developer* (consultant) is requested to forward their proposal under the attention of SET Business Administration Department through tz_info@swisscontact.org no later than [31-10-2022] at 5:00 PM EAT.