

**GRANT APPLICATION FORM**

1. Project title	Developing a combined e-Learning Curriculum and Information System on Food Standards as a contribution to up-grading the Quality Infrastructure in Developing Countries
2. Theme 1, 2 and/or 3	<p>The project addresses Themes 2 and 3 of the key STDF objectives:</p> <ul style="list-style-type: none"> <li>• Theme 2 "Capacity building for public and private organisations notably with respect to market access" with particular regard to: "advisory services and training of staff in the fields of food safety, animal or plant health"; "strengthening farmer's and/or professional organizations, and trade and industry associations in contributing to better management of SPS standards"; "analytical support to identify potential markets and their SPS requirements incl. collecting data for risk analysis."</li> <li>• Theme 3 "Information sharing on standards ..."; in particular: "Collection of SPS training materials" and "Analysing information on official and commercial SPS requirements, ... at a regional level" as well as local and global levels.</li> </ul>
3. Starting date	1 August 2010 – at the beginning of the first semester of the 2010/2011 academic year.
4. Completion date	31 July 2012 – at the end of second semester of the 2011/2012 academic year
5. Requesting organization(s)	<p><b>University of Cape Coast (UCC)</b>  University Post Office  Cape Coast  GHANA  Tel.: ++233-42-30725  Mobile: ++233-20-81 34 762  eMail: <a href="mailto:ngodasfa@yahoo.com">ngodasfa@yahoo.com</a>; <a href="mailto:prof.kwarteng@yahoo.com">prof.kwarteng@yahoo.com</a></p> <p>A letter of support from the UCC, as well as from the Ministries of Agriculture and Education are provided in <b>Appendix 1</b>.</p>
6. Implementing organization(s)	<p><b>University of Cape Coast (UCC)</b>  Prof. Dr. Joe A. Kwarteng  Dean, School of Agriculture</p> <p><b>Food and Agriculture Organization of the United Nations (FAO)</b>  Food Quality and Standards Service (AGNS)  Viella delle Terme di Caracalla  00153 Rome  ITALY  FAX: ++39-06-570-54593  eMail: <a href="mailto:food-quality@fao-org">food-quality@fao-org</a></p> <p>A letter of support from FAO-AGNS is provided in <b>Appendix 2</b>.</p>

	<p><b>Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH</b>  Division 45 - Agriculture, Fisheries and Food  Sector Project "Agricultural Trade"  PO Box 5180  65726 Eschborn  Germany  Tel.: ++49 (0) 61 96 - 79 1478  Fax: +49 (0) 61 96 - 79 801478  eMail: <a href="mailto:Doris.Guenther@gtz.de">Doris.Guenther@gtz.de</a>  Web: <a href="http://www.gtz.de/trade">http://www.gtz.de/trade</a></p> <p>in co-operation with:</p> <p><b>Market Oriented Agriculture Programme (MOAP)</b>  Dr. Lothar Diehl, GTZ Programme Advisor  P.O.Box 9698 KIA  Accra  GHANA  Tel.: ++233-21-67 14 15  Fax: ++233-21-67 14 16  Mobile: ++233-244-31 29 67  eMail: <a href="mailto:lothar.diehl@gtz.de">lothar.diehl@gtz.de</a></p> <p>A letter of support from GTZ is provided in <b>Appendix 2</b>.</p>
7. Project background and rationale	<p>See <b>Appendix 3</b> for a detailed description of the project background and rationale. Major considerations are as follows:</p> <p>Integration of small-scale farmers (final beneficiaries) into local, regional and global markets of fresh and processed fruit and vegetables bears high potential for pro-poor growth. However, access to markets implies that suppliers have to meet mandatory regulations set by legislators and comply with voluntary standards introduced by industry and trade, respectively, in target markets. Recognising that standards play an important role to achieving food security, assuring public health and facilitating consumer protection, developing countries are as well introducing ever-more stringent Sanitary and Phytosanitary Measures (SPS) both for imported and locally produced foodstuffs.</p> <p>Since the status of the final product corresponds to the capacities of the weakest link in the value chain, food safety and quality have to be managed at the source, instead of costly withdrawal of unsafe and wastage of unsold food from the market. Food safety and quality hence have to be managed along the entire value chain. Consequently, information has to be availed and capacities of producers, processors, traders and consumers built, to ensure that produce offered in markets is safe and meets consumers' requirements. However, currently fragmented linkages prevent that knowledge on standards is extending down the chain. To that effect, mechanisms are needed to communicate standards to all chain actors, especially to small-scale farmers as essential means to facilitate market access.</p>

	<p>The underlying rationale of this project is to strengthen the quality infrastructure to ensure more competent and cost-effective compliance with local, regional and global standards by</p> <ul style="list-style-type: none"> <li>• improving the education of future staff of public and private organisations and corporations setting, enforcing, certifying or adopting and applying mandatory and voluntary standards; and</li> <li>• setting up timely and credible information services on mandatory and voluntary standards applied in potential target markets.</li> </ul> <p>By adopting innovative methods of education and for access to information and by linking the quality infrastructure with value chains, the project will improve the capacities of practitioners to cope with rapidly changing regulations, to pro-actively influence standard setting, to identify adequate policy and enforcement responses, to adapt education, research and extension services to value chain needs and to take strategic and more cost-effective decisions on appropriate marketing and technological solutions.</p> <p>The costs of this project are mainly directed towards capacity building of teaching staff and students as source from which the public and private sectors will recruit future staff, and the establishment of an internet platform to facilitate practitioners' access to up-to-date information.</p> <p>The project builds on two main pillars: firstly, the 'Practitioners' Reference Book on Food Quality and Safety Standards' developed by GTZ in 2007; and secondly, national curricula for 'Value Chain Development' and 'Food Safety and Quality Assurance' recently prepared for accreditation in Ghana.</p> <p>The project activities are centred on university courses which survey the internet for food quality standards and update and extend the Reference Book. The results of the surveys are included into the e-learning tool which is developed in parallel at the university. Both, courses and self-teaching, are intended to be incorporated into future curriculum development.</p> <p>This project proposes an innovative approach to developing a combined e-learning curriculum and information system for food standards. It provides new delivery methods and tools for professionals in the public and private sectors, which are – in this form – not yet available and accessible for value chain stakeholders in Ghana and Africa. Up-scaling of the project's results is envisaged through existing public and private sector networks both within Ghana and in Africa. Awareness will be created and joint solutions sought with possible partners in Ghana and Africa-wide from university networks, business networks, regional trade organisations, and public sector networks.</p> <p>As implementing partners are involved: (1) the 'Food Quality and Standards Service (AGNS)' of FAO, as an additional major source of information and expert knowledge to be used for the development of the curriculum and the information system, and for the integration of the project into activities of other international institutions; (2) the 'Market Oriented Agriculture Programme'</p>
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	<p>implemented by the German Cooperation in Ghana, designated as monitor.</p> <p>For further relevant projects that may provide valuable input to this project or become users of its output see <b>Appendix 3.5</b>.</p>
8. Project management	<p>A description of the management structure of the project is presented in <b>Appendix 4</b>.</p> <p>Project leader is the University of Cape Coast (UCC) in Ghana with Prof. Dr. Joe Kwarteng as Project Manager. A Management Board supports the Project Manager in particular for embedding the project activities into the regular activities of the university. Several assistants of UCC will be responsible for the implementation of the didactic approach and the information technology approach. Students will be involved under supervision of the assistants.</p> <p>The FAO Food Quality and Standards Service (AGNS) will provide expert assistance for the surveys on sources for standards in the internet and quality assurance for the e-learning and information system products, and arrange contacts with other projects and institutions which are involved in the development of training materials and educational concepts. Short-term expert deployments by FAO are planned every half year during the project term.</p> <p>GTZ (Eschborn) and the Market Oriented Agriculture Programme (GTZ-MOAP) are foreseen as advisor and monitor of project progress.</p>
9. Project objectives	<p>The objectives of this project are presented in the logframe matrix in <b>Appendix 5</b>. In summary, the objective is to contribute to pro-poor growth by facilitating the integration of small-scale farmers (final beneficiaries) into local, regional and global markets of fresh and processed fruit and vegetables by</p> <ul style="list-style-type: none"> <li>• enhancing the capacity of the food quality infrastructure through the provision of better qualified young professionals for the administration, for research and extension and for food companies;</li> <li>• introducing innovative delivery methods for education and information services enabling       <ul style="list-style-type: none"> <li>- the public sector to realise sovereign tasks more effectively and efficiently (negotiation in standard setting organisations, harmonisation of national laws with international standards, enforcement of standards, accreditation)</li> <li>- the private sector to increase value chain competitiveness (compliance and certification, adaptation of marketing and technology decisions to market access requirements);</li> </ul> </li> <li>• reducing, in the medium to long run, the risk of marginalisation of the resource-poor small-scale farmers through improved capacities of service providers and reduced costs of compliance.</li> </ul>

10. Project outputs	<p>Project outputs are specified in the logframe matrix in <b>Appendix 5</b>. In summary, the project will produce the following outputs:</p> <ul style="list-style-type: none"> <li>• requirements for curricula on food quality and safety standards are documented;</li> <li>• e-learning tool on food standards is ready-to-use for students' courses;</li> <li>• students are qualified to be recruited as professionals in the food quality assurance system;</li> <li>• a standards information system including a maintenance system is established as part of the food quality infrastructure;</li> <li>• a didactical procedure for continuous updating of the e-learning tool and the information system with participation of students is established as part of the university curriculum;</li> <li>• teaching staff is better qualified for vocational training at the secondary and tertiary education sector;</li> <li>• additional partners, potentially capable of co-funding the maintenance of the e-learning tool and information system, are identified.</li> </ul> <p>For an allocation of these outputs to the time schedule see <b>Appendix 7</b>.</p>
11. Project activities	<p>The main project activities are presented in the logframe matrix in <b>Appendix 5</b> and described in more detail in the Work Plan presented in <b>Appendix 6</b>.</p> <p><b>1. Improved understanding of the requirements of curricula on food standards:</b></p> <ul style="list-style-type: none"> <li>• Outline of the current national food quality infrastructure to adapt proposed solutions to the existing structure;</li> <li>• Identification of possible end users of the curriculum and the e-learning tool (i.e. universities, training institutions);</li> <li>• Identification of possible end users of the information system (public and private sectors);</li> <li>• Assessment of staff capacity needs of potential future employers regarding knowledge on standards;</li> <li>• Assessment of the current coverage of food standards in curricula used in Ghana and the sub-region;</li> <li>• Cross check with internationally harmonised requirements for curricula and qualifications of personnel in the food safety management;</li> <li>• Assessment of the need to revise the 'Practitioners' Reference Book' to be used as basis for the e-learning tool and the information system;</li> <li>• Review and further development of the recently revised national curriculum in Ghana.</li> </ul>

	<p><b>2. (a) Development of the software for an e-learning tool and information system on food standards:</b></p> <ul style="list-style-type: none"> <li>• Choice, acquisition and establishment of an appropriate framework program;</li> <li>• Transformation of the structure of the ‘Practitioners’ Reference Book’ to the software;</li> <li>• Iterative development of the software of the e-learning tool and the information system;</li> <li>• Cross check with other institutions involved in the development of e-learning tools (mediated by FAO-AGNS);</li> <li>• Establishment of a computer intranet.</li> </ul> <p><b>2. (b) Establishment of a didactical procedure for updating the contents of the e-learning tool/ information system:</b></p> <ul style="list-style-type: none"> <li>• Further development of students’ courses on food standards;</li> <li>• Development of survey methods, tools and processes for updating information on food standards;</li> <li>• Testing of the e-learning tool both in teachers’ and students’ courses;</li> <li>• Testing the information system with practitioners from the public and private sectors;</li> <li>• Finalising the e-learning tool and information system by incorporating the results from the test runs.</li> </ul> <p><b>3. Establishment of an Internet platform for access to the e-learning tool and food standards information system:</b></p> <ul style="list-style-type: none"> <li>• Design of a web presentation for the e-learning tool and information system;</li> <li>• Establishment of an information system server and the user management system;</li> <li>• Establishment of solutions and processes for the integration of updating results into the Internet platform.</li> </ul> <p><b>4. Involvement of additional partners to ensure sustained maintenance of the information system:</b></p> <ul style="list-style-type: none"> <li>• Link with other projects on the development of training materials or curricula on food safety mediated by FAO-AGNS;</li> <li>• Development of a business plan for the sustainable maintenance of the e-learning tool and information system at UCC;</li> <li>• Identification of potential future owners, sponsors, co-financiers of the e-learning tool and information system;</li> <li>• Awareness creation on the benefits and costs for the financial sustainability of the internet presentation;</li> <li>• Implementation of a regional final project workshop for the promotion of the e-learning tool and information system including final evaluation of the project.</li> </ul>
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12. Timetable	<p>The project will have a duration of 2 years and should be linked to the semester terms. Start date could be 1 August 2010. A detailed timetable is provided in <b>Appendix 7</b>.</p> <p>It is intended to provide reports on planned and achieved tasks to the monitor of the project and STDF at the beginning and the end of each work package, and in between, if appropriate.</p>																								
13. Private/public sector co-operation	<p>The project will be implemented by the University of Cape Coast (Ghana). Next to the students, who are primary beneficiaries of the e-learning tool, the project will make the information available to practitioners in the quality infrastructure, among them policy makers, administration, research and extension, and food operators (producers, traders, processors) and their business organisations.</p> <p>It is the intention of the project to create interest among private and public sector institutions to support the sustainable maintenance of the learning tool and information system and the replication of the combined e-learning curriculum and information system in other sub-sectors and countries, respectively. It may be expected that by co-ordination of FAO-AGNS the exchange between these private and public sector institutions and the project is facilitated.</p>																								
14. Budget	<p>The total budget for this proposal is 267 342 US \$. This includes:</p> <table border="1" data-bbox="639 1039 1342 1323"> <thead> <tr> <th data-bbox="639 1039 959 1070">Contribution by (in US \$):</th> <th data-bbox="959 1039 1102 1070">STDF</th> <th data-bbox="1102 1039 1342 1070">UCC</th> </tr> </thead> <tbody> <tr> <td data-bbox="639 1088 863 1120">Personnel services</td> <td data-bbox="1007 1088 1102 1120">135 000</td> <td data-bbox="1262 1088 1342 1120">3 600</td> </tr> <tr> <td data-bbox="639 1122 943 1153">Travels (incl. Workshop)</td> <td data-bbox="1007 1122 1102 1153">31 700</td> <td></td> </tr> <tr> <td data-bbox="639 1155 943 1187">Daily subsist. allowances</td> <td data-bbox="1007 1155 1102 1187">27 360</td> <td></td> </tr> <tr> <td data-bbox="639 1189 847 1220">General operating</td> <td data-bbox="1007 1189 1102 1220">5 000</td> <td data-bbox="1246 1189 1342 1220">20 000</td> </tr> <tr> <td data-bbox="639 1223 799 1254">IT equipment</td> <td data-bbox="1007 1223 1102 1254">19 400</td> <td></td> </tr> <tr> <td data-bbox="639 1256 863 1288">External evaluation</td> <td data-bbox="1007 1256 1102 1288">15 000</td> <td></td> </tr> <tr> <td data-bbox="639 1290 799 1321">Contingencies</td> <td data-bbox="1007 1290 1102 1321">9 338</td> <td data-bbox="1278 1290 1342 1321">944</td> </tr> </tbody> </table> <p>A detailed breakdown of the proposed uses of the funds is provided in <b>Appendix 8</b>.</p> <p>Terms of reference (TOR) for key project staff are presented in <b>Appendix 9</b>.</p> <p>Specification of the IT equipment used for this project is provided in <b>Appendix 10</b>.</p>	Contribution by (in US \$):	STDF	UCC	Personnel services	135 000	3 600	Travels (incl. Workshop)	31 700		Daily subsist. allowances	27 360		General operating	5 000	20 000	IT equipment	19 400		External evaluation	15 000		Contingencies	9 338	944
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15. Non STDF contributions	<p>The University of Cape Coast (UCC) will contribute to the project budget by allocating part-time secretarial services, availing premises, in particular for setting up the computers and providing working space for students, office accommodation, and covering the costs for general operation services, such as telephone, electricity, local transport, material for seminars etc.</p> <p>Details of contributions of UCC of a total of 10.1% of the STDF project budget are presented in <b>Appendix 8</b>.</p> <p>FAO-AGNS will arrange the deployment of short-term experts to the project in Ghana. A fee for the expert and travel costs are foreseen in the project budget in addition to FAO's own contribution. The other main activity of FAO-AGNS, i.e. co-ordination and communication of the project with other institutions, is not included in the project budget.</p> <p>GTZ (Eschborn) and MOAP (GTZ, Accra, Ghana) will serve as external monitor of the project. Activities of MOAP are not included in the project budget.</p>
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## **STDF Grant Application**

**by University of Cape Coast (UCC), Ghana**

**Food Quality and Food Safety Standards:  
Developing a combined e-Learning Curriculum and Information System  
as part of the Quality Infrastructure in Developing Countries**

### **Appendix 1: Supporting letters**

*<Requesting organisations (UCC Ghana) + Ministries of Agriculture and Education ...>*

### **Appendix 2: Endorsement of implementing organizations**

*<Implementing organisations: UCC + FAO-AGNS + GTZ/MOAP>*

## Appendix 3

### 3 DESCRIPTION OF THE PROJECT BACKGROUND AND RATIONALE

#### 3.1 Background

##### 3.1.1 Standards and value chains

In the context of the globalisation of food supply chains, customers' requirements for high quality and safe agro-industrial products is constantly increasing. According to the new EU Food Law (in force since January 2006), guaranteeing food safety and quality, along with environmental protection and social responsibility, is the responsibility of food operators at all stages of production, processing handling and distribution. In line with this provision, the public sector establishes Sanitary and Phytosanitary Measures (SPS) with a view to specifying and harmonising food safety related product and delivery attributes 'from farm to fork'.

Recognising that standards play an important role to achieving food security, assuring public health and facilitating consumer protection, developing countries are as well introducing ever-more stringent SPS both for imported and locally produced foodstuffs.

In the ideal case, standards facilitate the co-ordination of processes along value chains, from input supplies through farming, trading, processing up to consumption. By improving transparency between food operators, standards contribute to enhancing chain efficiency and lowering transaction costs.

But increasing concerns about food safety around the world are giving rise to an ever expanding and sometimes confusing system of standards and regulations adopted by multilateral, supranational and national organisations. In addition, private standards, which are not legally binding, are used as a strategic tool for gaining a competitive edge through product differentiation. Private standards thus become a quasi-obligation for suppliers, both when competing with foreign suppliers in their domestic markets and with exporters from all over the world in regional and global export markets.

##### 3.1.2 Standards, market access and quality infrastructure

While “increasing trade offers considerable opportunities for growth and socio-economic progress” (Grote and Stamm, 2007<sup>1</sup>), it is a real threat for most developing countries to catch up with ever more diverse and stringent market access requirements. “Failure to meet these challenges will undermine rural development strategies that have been predicated on expanding agricultural production, introducing high-value products and tapping into the fast-expanding sectors of global trade.” (Humphrey, 2008<sup>2</sup>). This is especially challenging with regard to poverty reduction since “it is the asset-poor with limited access to information and service that may be left out from participating in these ... value chains” (Asfaw et al, 2008<sup>3</sup>).

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<sup>1</sup>) Grote, U. and A. Stamm (2007): Quality Requirements and Quality Infrastructure in Value Chains Reaching Out to Developing Countries. Study for the Physikalisch Technische Bundesanstalt (PTB), Braunschweig, Germany.

<sup>2</sup>) Humphrey, J. (2008): Private Standards, Small Farmers and Donor Policy: EUREPGAP in Kenya; Institute of Development Studies (IDS). Working Paper 308; University of Sussex; Brighton, UK.

<sup>3</sup>) Asfaw, S. et al (2008): Economic Impact of GlobalGAP Standards on African Producers: the Case of Horticultural Exports from Kenya. PEGNet Conference: Assessing Development Impact – Learning from Experience; Accra (Ghana); September 2008.

In order to gain access to global value chains, while ensuring competitiveness with imports in the domestic market, public and private stakeholders need to upgrade their quality assurance and risk management systems as part of the countries' quality infrastructure. "Quality infrastructure is a system responsible for the setting up, implementation as well as monitoring of standards and technical regulations in the value chain... This includes both public and private institutions and the regulatory framework within which they operate." (Grote and Stamm, 2007).

### 3.1.3 Standards and capacity building

A key challenge in this setup is to communicate market access requirements along value chains by establishing reliable information services and facilitating know-how transfer on standards and regulations. However, in most developing countries, the quality infrastructure does not provide for two related basic elements:

- the concepts and tools for (formal and informal) capacity development of public and private stakeholders to understand standards and to establish and maintain adequate risk management and quality assurance systems, and
- "the system of generating, collecting, collating and rapid dissemination of food safety information" (Lonyangapuo, 2008<sup>4</sup>) to communicate market access requirements along value chains.

There is hence an urgent need to upgrade the quality infrastructure in both aspects through capacity development of those organisations, which are responsible for collecting, analysing, communicating, developing and negotiating food standards, namely public administration, research and extension services, producers', traders' and processors' associations, food companies, other advisory services and development agencies, among others. The personnel in these institutions is largely recruited from universities and agricultural colleges.

## 3.2 Project objective and rationale

In response to widespread shortcomings in the dissemination of up-to-date information in Developing Countries, this project aims at introducing an innovative approach to developing a combined e-learning curriculum and information system for food quality and food safety standards as part of the quality infrastructure (project objective).

The underlying rationale is to contribute to pro-poor growth by facilitating the integration of small-scale farmers (final beneficiaries) into local, regional and global markets of fresh and processed fruit and vegetables by (use of outputs and outcomes):

- enhancing the capacity of the food quality infrastructure through the provision of better qualified young professionals for the administration, for research, extension and for food companies, etc.;
- introducing innovative delivery methods for education and information services enabling
  - the public sector to realise sovereign tasks more effectively and efficiently (negotiation in standard setting organisations, harmonisation of national laws with international standards, enforcement of standards, accreditation)
  - the private sector to increase value chain competitiveness (compliance and certification, adaptation of marketing and technology decisions to market access requirements);

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<sup>4</sup>) Lonyangapuo, J. K. (2008): Closing speech; in: Trade Capacity Building in agro-industry products for the establishment and proof of compliance with international market requirements. Workshop Report; Nairobi, Kenya; May 2008.

- reducing, in the medium to long run, the risk of marginalisation of the resource-poor small-scale farmers through improved capacities of service providers and reduced costs of compliance.

### **3.3 Project impacts**

Major outputs of this project will be:

- to anchoring capacity-building and up-to-date information on food standards within the quality infrastructure in view of availing this knowledge to value chain stakeholders, as well as
- to connecting higher education and industry-oriented information systems through innovative didactical approaches.

On its way to achieving these impacts, the project will furthermore produce the following outputs:

- requirements for curricula on food quality and safety standards are documented;
- e-learning tool on food standards is ready-to-use for students' courses;
- students are qualified to be recruited as professionals in the food quality assurance system;
- a standards information system including a maintenance system is established as part of the food quality infrastructure;
- a didactical procedure for continuous updating of the e-learning tool and the information system with participation of students is established as part of the university curriculum;
- teaching staff is better qualified for vocational training at the secondary and tertiary education sector;
- additional partners, potentially capable of co-funding the maintenance of the e-learning tool and information system, are identified.

#### **3.3.1 Employability of students within the food quality infrastructure increased**

The initial approach of this project is based on the fact that the organisations responsible for building the respective capacities and communicating market access requirements (public bodies, private sector organisations, development agencies and the like) recruit their staff from national graduates of local universities and agricultural colleges. Regulatory aspects generally have a low priority in traditional university curricula for agricultural sciences or food and public health training. The project will increase the awareness and knowledge of students on food quality and safety standards by giving this aspect an explicit share in curricula and involving students in the development of the e-learning tool and information system on food standards.

In this field, the project can build on the national curricula for 'Value Chain Development' and 'Food Safety and Quality Assurance', recently prepared for accreditation in Ghana.

#### **3.3.2 Access to up-to-date information on food standards improved for practitioners**

The project will set up an information platform on food standards for actors within the quality infrastructure and value chains: policy-makers, the business community, control, research and training institutions and the like.

Here, the project will build on the 'Practitioners Reference Book on Food Quality and Safety Standards' edited by the German Development Cooperation (Will and Guenther, GTZ, 2007<sup>5</sup>)

This reference book has already been updated once (1<sup>st</sup> edition 2003; 2<sup>nd</sup> edition 2007). But, since the standards landscape is constantly changing, a system for continuous and systematic up-dating needs to be established. The project will develop a didactic procedure that will enable a competent and continuous update and further development of the contents of the reference book. Students will be directly involved in the Internet surveys for up-dating standards and building the database on food standards behind the e-learning tool. By using new communication technologies, the project will make the information, which was initially generated for the e-learning tool, also available to practitioners among officials, consultants, food producers and traders.

### **3.3.3 Stakeholders involved for the continuous operation of the e-learning tool and information system**

In addition to the project partners engaged in the development of the e-learning tool and the information system, it is envisaged to search for further partners within the quality infrastructure, universities and research institutes or partners in other countries, respectively. The intention is to create interest among private and public sector institutions to support

- the sustainable maintenance of the learning tool and information system and
- the replication of the combined e-learning curriculum and information system in other sub-sectors or countries, respectively.

### **3.4 Project costs and benefits**

The total costs of the proposed project amount to 267 342 US \$. This includes a share of around 10% which will be borne by the University of Cape Coast (UCC Ghana) in form of part-time secretarial services, availing premises, in particular for setting up the computers and providing working space for students, office accommodation, and covering the costs for general operation services, such as telephone, electricity, local transport, material for seminars etc.

The major share of the project costs (50%) is devoted to personnel (incl. assistants) responsible for project management, contacts with other projects and institutions, supervising the student activities within the project, the development of didactical, maintenance and software concepts and procedures, as well as the programming and maintenance of the e-learning tool and information system. Student assistants will be engaged for performing surveys and testing the software. External experts from FAO will be designated for short-term assignments (7% of total budget).

A share of around 7% of the budget is allocated for the acquisition of equipment and related expenditures: computers and printers, Internet access, license for the programming tool and fees for the web designer.

Administration and travel costs (8% of total budget) will be incurred for the promotion and dissemination of the curriculum and the information system to interested future users and potential sponsors/co-owners of the systems: other universities and stakeholders within the quality infrastructure within Ghana, the sub-region and Africa.

Towards the end of the project, potential users of the e-learning tool and information system will be invited to a workshop (12% of total costs).

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<sup>5</sup>) Will, M. and D. Guenther (2007): Food Quality and Safety Standards as required by EU Law and the Private Industry – A Practitioners' Reference Book; 2nd edition; editor GTZ, Eschborn; CD-ROM.

For the evaluation of the project a budget of 15 000 US\$ has been allocated (6% of total budget).

A detailed budget plan is presented in **Appendix 8**.

Primary beneficiaries of the project are students who are future new recruits of public and private institutions within the food quality infrastructure. These institutions benefit from highly skilled employees, but can also make direct use of the up-to-date information system on food standards provided by this project. In fact, it is envisaged that there is a return from these institutions which will enable continuous operation of the information system on the Internet.

By adopting innovative methods of education and for access to information and by linking the quality infrastructure with value chains, the project will improve the capacities of practitioners to cope with rapidly changing regulations, to pro-actively influence standard setting, to identify adequate policy and enforcement responses, to adapt education, research and extension services to value chain needs and to take strategic and more cost-effective decisions on appropriate marketing and technological solutions.

At this point, the innovative approach of combining the development of the e-learning curriculum with the establishment of an internet-based standards information system as part of the quality infrastructure becomes manifest: On the one hand, the e-learning tool facilitates knowledge-transfer on food standards to future employees in administration, food industry, and extension services; on the other hand, practitioners will have reliable and timely access to up-to-date information.

### 3.5 Linkages with other projects

The project will co-operate with other projects and institutions facilitated by FAO-AGNS. These links have the following benefits:

- other projects may introduce new ideas for the design and operation of the e-learning tool and information system;
- other institutions may give support with regard to technical and didactical aspects;
- training materials and requirements to the level of training and teaching may be streamlined.

In addition to the information already available on the programmes involved in the implementation of the proposed project, the following projects can provide valuable inputs, experiences and many contacts to possible end-users of the proposed project (most projects have been extracted from the DOHA Development database; [http://tcbdb.wto.org/advanced\\_search.aspx](http://tcbdb.wto.org/advanced_search.aspx)).

Project	Related activities	Possible relation to the proposed project
<b>World Trade Organisation (WTO)</b>		
Trade and SPS related education	<ul style="list-style-type: none"> <li>• Regional seminars, workshops, trainings courses (incl. e-learning).</li> </ul>	<ul style="list-style-type: none"> <li>• Two-way exchange on the e-learning tool/information system</li> </ul>

Project	Related activities	Possible relation to the proposed project
<b>Standards and Trade Development Facility (STDF)</b>		
African Centre of Phytosanitary Excellence; (ACOPE 2008/2009; STDF 171 rev. 1)	<ul style="list-style-type: none"> <li>• Curriculum development (Activity 2.2) at the University of Nairobi;</li> <li>• Course modules (Activity 2.3) on phytosanitary regulations and trade standards.</li> </ul>	<ul style="list-style-type: none"> <li>• Exchange of curriculum elements.</li> <li>• Joint solution for sustainable ownership and maintenance of the curricula and information system.</li> </ul>
Assistance from STDF to Food Safety and Food Quality; implemented by: FAO (PN: MTF/GLO/129/STF; 2005)	Increase the capacity of low-income countries to: <ul style="list-style-type: none"> <li>• Develop national food standards;</li> <li>• Participate in the Codex standard-setting process;</li> <li>• understand/ comply with international standards.</li> </ul>	<ul style="list-style-type: none"> <li>• The food standard information system developed in the proposed project could support Competent Authorities in the beneficiary countries of this FAO project.</li> </ul>
<b>United Nations Industrial Development Organization (UNIDO)</b>		
Integrated Programme – Ghana Food Component (Project No. XAGHA03622; 2003)	<ul style="list-style-type: none"> <li>• Strengthening the administrative capacity in food safety;</li> <li>• Adapting domestic legislation to international standards and commercial market requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Input into the needs assessment of the proposed project.</li> <li>• Identification of possible end-users for the e-learning tool and information system.</li> </ul>
<b>Multiple donors</b>		
World Directory of Information Sources on Standards ... SPS Meas.; implemented by: International Trade Centre (ITC) (BAS-106-08.E; 2006)	<ul style="list-style-type: none"> <li>• Development of a tri-lingual directory of national, regional, international organisations dealing with standards, metrology, accreditation, incl. membership international organisations, WTO enquiry points</li> </ul>	<ul style="list-style-type: none"> <li>• Identification of additional partners, future users.</li> <li>• Baseline for information surveys.</li> </ul>
<b>German Development Cooperation</b>		
Market Oriented Agriculture Programme (MOAP); implemented by GTZ	<ul style="list-style-type: none"> <li>• Support to curriculum development on value chain development and food standards;</li> <li>• Capacity-building of value chain actors for compliance with standards;</li> <li>• Strengthening public and private service providers' capacities (e.g. information systems).</li> </ul>	In addition to the planned monitoring/ advisory task: <ul style="list-style-type: none"> <li>• Input into the needs assessment of the proposed project.</li> <li>• Identification of possible end-users for the project's output..</li> </ul>
Quality assurance of agricultural products through metrological and testing services; implemented by Physikalisch-Technische Bundesanstalt (PTB)	<ul style="list-style-type: none"> <li>• Establishment of a network of measurement and testing laboratories;</li> <li>• Support to the development of national standards for processed fruit and vegetables;</li> <li>• Strengthening of the quality infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>• Input into the needs assessment of the proposed project.</li> <li>• Identification of possible end-users for the e-learning tool and information system.</li> </ul>
<b>Swiss Development Cooperation</b>		
Trade Capacity Building Programme, implemented by: UNIDO (Project No. USGHA6005; 2007)	<ul style="list-style-type: none"> <li>• Improve supply-side capacity to produce to international standards and technical regulations;</li> <li>• Establish and upgrade the conformity assessment infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>• Input into the needs assessment of the proposed project.</li> <li>• Identification of possible end-users for the e-learning tool and information system.</li> </ul>

Project	Related activities	Possible relation to the proposed project
<b>United States Agency for International Development (USAID)</b>		
E-commerce and IT activity; implemented by: USAID in Senegal (Project No. 614-000717-05-A; 2005)	<ul style="list-style-type: none"> <li>• Supporting the design and implementation of a distance learning program for the University of the Sahel.</li> </ul>	<ul style="list-style-type: none"> <li>• Lessons learnt and solutions may be considered in the planned project.</li> </ul>
Business services and training project; implemented by USAID in Ghana, Kenya, etc. (Project No. 103-000512-05-A/B/C; 2005)	<ul style="list-style-type: none"> <li>• Assessment of third party food standards certification capacity.</li> </ul>	<ul style="list-style-type: none"> <li>• The results provide basic information for end-user requirements with regard to the food standard information system to be developed.</li> </ul>
Regional Agricultural Trade Intelligence Network (RATIN); East Africa	<ul style="list-style-type: none"> <li>• Development of a regional information system to supply traders with improved early warning marketing and trade information.</li> </ul>	<ul style="list-style-type: none"> <li>• Input into the needs assessment of the proposed project.</li> <li>• Identification of possible dissemination systems for the standard information system.</li> </ul>
Network of Regional Market Information Systems and Traders' Organizations of West Africa (MISTOWA)	<ul style="list-style-type: none"> <li>• Improving and linking the existing regional efforts to generate, disseminate, and make commercial use of market information.</li> </ul>	<ul style="list-style-type: none"> <li>• Input into the needs assessment of the proposed project.</li> <li>• Identification of possible dissemination systems for the standard information system.</li> </ul>



## Appendix 4

### 4 PROJECT MANAGEMENT STRUCTURE

The management structure of the project is presented in the following graph. The tasks at the different levels are given in detail in **Appendix 6** (Work Plan) and **Appendix 9** (TORs for Key Personnel). A Project Steering Committee (PSC) is not required for this project.

#### **Involvement of additional project implementation partners**

**Food and Agriculture Organization (FAO);** Food Quality and Standards Service (AGNS); food-quality@fao-org .

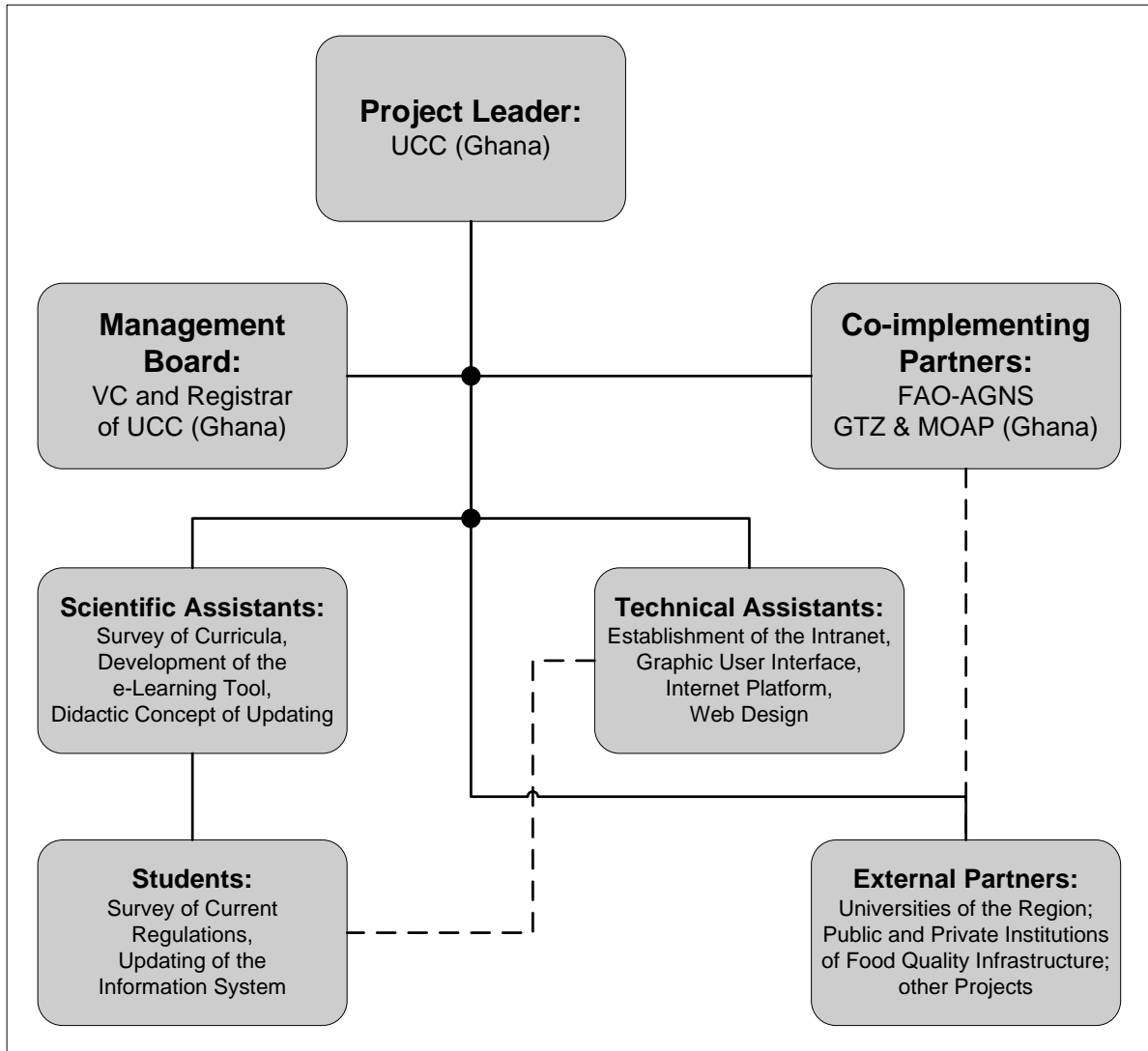
FAO-AGNS operates the International Portal on Food Safety, Animal and Plant Health ([www.ipfsaph.org](http://www.ipfsaph.org)). The IPFSAPH is a major source of information both for the e-learning tool and the standard information system, which will be established in the proposed project. Therefore, staff members of FAO-AGNS are ideal consultants to develop survey strategies in the context of the "didactical procedure of updating" and to evaluate the completeness of the information system (quality assurance). The project provides for four short-term expert assignments every half year of the project term.

Next to this direct involvement in the project, FAO-AGNS has knowledge and access to a large number of other projects and institutions which are involved in the preparation of training materials, education and standards setting. With the objectives of avoiding duplication, creating compatibility of training materials, filling gaps, increasing the quality and promoting innovations, FAO-AGNS can facilitate contacts between UCC and other institutions and make experiences interchangeable.

#### **Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH and Market Oriented Agriculture Programme (GTZ-MOAP)**

MOAP is a bilateral programme jointly implemented by the Ministry of Food and Agriculture on behalf of the Government of Ghana and the Deutsche Gesellschaft fuer Technische Zusammenarbeit (GTZ) on behalf of the German Development Cooperation. The programme is located in Accra with offices in three regions in Ghana, one of which in Cape Coast where the UCC is located. Aiming at improving the competitiveness of selected sub-sectors of Ghana's food industry, the programme supports the upgrading of selected value chains, the strengthening of policy advice systems and the development of private sector organisations. With regard to SPS, a major objective of MOAP is to strengthen stakeholders' capacities for the adoption of food standards. Due to its local presence and experience in the sector, MOAP and the Sector Project "Agricultural Trade" (Division 45 of GTZ, Eschborn) are ideal partners to monitor the project and to advise in the implementation.

### Project Management Structure



## Appendix 5

## 5 LOGFRAME MATRIX

	<b>Project description</b>	<b>Measurable indicators</b>	<b>Sources of verification</b>	<b>Assumptions and risks</b>
<b>Overall objectives (goals)</b>	Contribute to pro-poor growth by facilitating the integration of small-scale farmers (final beneficiaries) into local, regional and global markets of fresh and processed fruit and vegetables.	Increase in income of small-scale producers (long-term).	National statistics; evaluation by international organisations, such as FAO and WTO.	Stable demand in potential target markets at fair prices.
<b>Immediate objectives (purpose)</b>	Introduce an innovative approach to developing a combined e-learning curriculum and information system for food quality and food safety standards as part of the quality infrastructure.	Employability of students within the food quality infrastructure increased. Value chain oriented standard information services accessible.	Tracer study of employment rate and type of employers of students within the quality infrastructure. Access rate to the food quality information system in the Internet. Questionnaire on the satisfaction of users with the information system.	Employment opportunities for qualified students. Awareness of advisory institutions to needs and willingness to use information on standards to improve their working efficiency.
<b>Expected results (outputs)</b>	a) an innovative e-learning tool on food standards ready to use for students; b) better educated future employees and a better qualified teaching personnel at the secondary and tertiary education sector;	a) Lecturers, researchers and students use the e-learning tool, first at UCC, later at other universities and training facilities; b) Students passing the courses and progress in curriculum development.	Progress report to STDF and MOAP (monitor). Record of contacts with potential future users, sponsors, co-owners. E-learning tool and standard information system available on the Internet for public scrutiny.	Interest of potential end users for the information system and the e-learning tool and their willingness to support the continuous development of the tools. Integration of food standards into the curricula of Ghanaian universities will not be reverted.

	<b>Project description</b>	<b>Measurable indicators</b>	<b>Sources of verification</b>	<b>Assumptions and risks</b>
Expected results (outputs)  <b>(continued)</b>	c) an Internet platform for easy access of the food quality infrastructure to the food standards information system; d) a continuous updating of the information system.	c) Users inside and outside the universities access the homepage and find the information useful; d) Web presentation, updating of the contents and access persist beyond the project.		Interest to replicate the same elsewhere in the region (sub-region, Africa).
<b>Activities</b>	a) Improve the understanding of the requirements of curricula on food standards; b) Develop the software for an e-learning tool and information system on food standards; c) Establish a didactical procedure for updating the contents of the e-learning tool/information system (student seminars); d) Establish an Internet platform for access to the e-learning tool and food standards information system; e) Assignment of FAO-AGNS short-term experts; f) Contacts with other projects; Involve additional partners to ensure sustained maintenance of the information system.	The <b>milestones</b> of the project are the accomplishment of the results/outputs (see above and time table below).	Progress report to STDF and MOAP (monitor), final project evaluation. Protocol of contacts and improvements for FAO-AGNS.	Qualified key personnel for project implementation as defined in Appendix 9. The risk of inadequate equipment, facilities and infrastructure is low in this project.

**Appendix 6****6 DETAILED WORK PLAN****6.1 Improved understanding of the requirement for curriculum development on food standards**

This pilot-project will be realised by the University of Cape Coast (UCC Ghana), which recently developed one curriculum for value chain development and one for food safety and quality assurance in cooperation with partner universities in the country. Both curricula are in the process of national accreditation for junior and senior high school students. To establish the baseline and starting point for the project, it is envisaged to assess the current integration of food standards issues into study courses at universities in Ghana and in the region (e.g. University of Nairobi) and at other private or public training institutions. These institutions will be future beneficiaries of the e-learning tool.

Following this supply side assessment of existing curricula, the project will implement a needs assessment among public and private stakeholders of the quality infrastructure (value chain operators, administration and inspection bodies, advisory and certification services, policy makers, etc.) to establish:

- staff recruitment criteria for future personnel with regard to knowledge on food standards and
- information needs with regard to food standards

both classified according to requirements of the different types of stakeholders.

**6.2 (a) Development of the software for an e-learning tool and an information system on food standards****(b) Establishment of a didactical procedure for updating the contents of the e-learning tool/information system**

The 'Practitioners' Reference Book on Food Quality and Safety Standards' edited by GTZ in 2007 complements current curricula on food standards with a view to meeting the capacity requirements of future staff of public and private employers of graduates. The book (CD-ROM) has the advantage of an easy distribution, a low technical requirement, a large variety of approaches to learning and referencing, and easy guidance through a complex topic.

Based on the assessment of the gaps between the needs of the industry/other practitioners in the quality infrastructure and the current coverage of food standards in university curricula (see 6.1), the Reference Book will be transformed into the software for the e-learning tool/information system which is supposed to be accessible via the Internet.

The structure of the e-learning tool/information system will be similar to that of the reference book and covering mandatory and voluntary standards at multilateral, supra-national (e.g. European Union) and national levels. The e-learning tool will provide explanations, cross-references, links to original documents, downloadable documents, as given the Reference Book. Furthermore, the e-learning tool will provide a time schedule for learning, as well as possibilities for interaction with other users of the tool and training exercises (partly already developed in the curricula developed in Ghana).

Special attention will be paid to the development of a didactic concept and portioning of the learning units to be suitable for self-teaching. Furthermore, provisions will be made for making feedback from students and other users possible, with regard to updating standards, extending the document library, and collecting case-studies on food scandals or successful implementation of standards, etc.

Moreover, continuous revision and updating of the contents of the modules is necessary to catch up with the ongoing change of standards and technical regulations (e.g. laws and regulations, list of Maximum Residue Levels (MRLs), voluntary standards of trade and industry). This requires the development of procedures for the systematic observation of information sources (provided in the Reference Book) and for the incorporation of changes into the web-based learning tool and information system.

These work packages of the proposal, or parts of it, will be accomplished by master students or seminar groups under the guidance of the project assistants (lecturers or tutors). This pertains in particular to realising background surveys, updating of contents as well as testing of the e-learning modules and the user friendliness of the internet presentation. The seminars (possibly 2-3 in parallel) will be an extra task for students, but it is the plan to integrate these updating seminar into the regular activities of the university at the end of the project. A certain budget is foreseen for student assistants to participate in the survey work, programming and testing.

Aiming at facilitating test-runs and preparing for broader multiplication from the very start of the project, the assistants will train a first group of teachers and tutors already during the course of development of the e-learning tool and information system.

Expert consultancy by FAO-AGNS is foreseen right from the beginning of the survey phase. This will guarantee that sources and institutions for food standards are covered in a comprehensive manner during the surveys. The relative importance of standards and regulations, the international level of institutions involved and the necessary timelines for updating surveys can be interactively developed with the UCC.

### **6.3 Establishment of an Internet platform for the e-learning tool and information system**

The development of an internet-based e-learning system requires the purchase of a user license for the framework programme. The establishment of the Internet platform takes the following aspects into account:

- Establishment of a work room for the Internet surveys (an intranet of 10 PCs);
- validation and update of the list of currently existing Internet homepages on food standards provided in the Reference Book;
- development of a graphic user interface;
- development of a business plan for the permanent maintenance and further development of the Internet presentation of the e-learning tool and information system including
  - estimation of costs and
  - assessment of options for self-financing of the web presence by user fees or sponsors.

Based on the experience of the FAO-AGNS and IPFSAPH with the survey of standards and the presentation in the Internet a short-term expert assignment is targeted at the quality assurance of the e-learning tool and the information system with regard to completeness and accuracy of the presented information.

### **6.4 Involvement of additional partners**

GTZ (Eschborn) and GTZ-MOAP (Ghana) will be involved in monitoring project activities and progress of the project in a similar way as the final evaluator, alongside with an advisory role. The Sector Project "Agricultural Trade" is the originator of the Reference Book on Food Quality and Safety Standards on CD and MOAP has been chosen based on the programme's experiences in food quality and safety standards, its working relationship with UCC and its knowledge and networking relations with large parts of the stakeholder community within the quality infrastructure in Ghana. In particular, GTZ and MOAP will support the reporting of the project progress and financial handling in co-operation with the Management Board. Activities of GTZ and MOAP are not included in the project budget.

In addition to the partners of the pilot project, it is envisaged to search for further partners within the quality infrastructure, universities and research institutes or partners in other countries respectively. The intention is to create interest among private and public sector institutions to support

- the sustainable maintenance of the e-learning tool and information system within Ghana and
- the replication of the combined e-learning curriculum and information system in other sub-sectors or countries respectively;
- co-ordination and exchange with ongoing projects with regard to matching of training materials, harmonisation of requirements for young professionals and compatibility of software.

To that end, the planned regional final project workshop will also be used for further promoting the e-learning tool and information system alongside the final evaluation of the project.

## Appendix 7

### 7 TIMETABLE

The ideal starting point for this project is the beginning of the winter term at UCC (August 2010). The proposed duration of the project (2 years) is largely determined by the time needed for

- the capacity-building of the assistants and a first group of teachers, tutors and students to be involved in the development of the e-learning tool and information system;
- the iterative process for developing, testing, reviewing, re-testing and finalising both the software and the contents; and
- the action-oriented approach to creating awareness and interest among possible future users and owners of the curriculum and the information system.

#### Timetable for the establishment of an e-learning tool and information system on food quality and safety standards

		2010		2011				2012	
WP		Q III	Q IV	Q I	Q II	Q III	Q IV	Q I	Q II
1	Requirements for curriculum								
2a	Development of an e-learning tool								
2b	Didactic procedure for updating standards								
3	Establishment of an Internet platform								
4	Involvement of additional partners								

## Appendix 8

## 8 BUDGET

All figures in the budget are in US Dollar (US \$). The activities in column 1 relate to the work plan (**Appendix 6**) and the time table (**Appendix 7**). Personnel are working part-time on the project except for one the technical assistants.

1 Activity	2 Cost item	3 Cost unit (in 2 years)	US \$ STDF Contribution	US \$ UCC Contribution
<b>Project management</b>	personnel (leader)	20 person months	20 000	
Management board	personnel (2)	40 person months	12 000	
Project service	personnel	10 person months		3 600
General operation services	facilities / material	24 months		20 000
Contacts to partners	travels	4 international trips	4 400	
	DSA	4 x 5 days	3 600	
Consultancy by FAO-AGNS	personnel (consultant)	4 x 10 days	8 000	
	travels	4 international trips	4 400	
	DSA	4 x 10 days	7 200	
<b>1. Requirements for curriculum development</b>				
personnel (assistants)		9 person months	3 600	
Contacts to partners	travels	4 national trips	2 000	
	DSA	4 x 3 days	2 160	
<b>2.a Software development of e-learning tool</b>				
Software licence	personnel (assistants)	39 person months	16 900	
framework program	IT equipment	1 package	2 000	
IT equipment	IT equipment	10 computer units	12 000	
<b>2.b Didactical procedure for updating</b>				
Seminars for students	personnel (assistants)	42 person months	16 800	
	personnel (students)	900 person mon.	45 000	
<b>3. Internet platform</b>				
Provider for Internet acc.	personnel (assistants)	21 person months	9 100	
Software web designer	IT equipment	2 yr. contract	2 400	
IT equipment	IT equipment	1 package	1 000	
	IT equipment	1 server unit	2 000	
<b>4. Involvement of additional partners</b>				
personnel (assistants)		9 person months	3 600	
Contacts to partners	travels	4 international trips	4 400	
	DSA	4 x 5 days	3 600	
Final project workshop	travels	15 participants	16 500	
	DSA	15 x 4 days	10 800	
Final project workshop	service	1 workshop	5 000	



1	2	3	US \$ STDF Contribution	US \$ UCC Contribution
Activity	Cost item	Cost unit (in 2 years)		
<b>External evaluation</b>	personnel	1 consultant	15 000	
	<b>SUBTOTAL</b>		<b>233 460</b>	<b>23 600</b>
	Contingencies (4% of subtotal)		9 338	944
	<b>TOTAL</b>		<b>242 798</b>	<b>25 544</b>
	<b>PROJECT TOTAL</b>		<b>267 342</b>	<b>US \$</b>
	Personnel		135 000	3 600
	Services		5 000	20 000
	IT equipment		19 400	
	Travels (incl. Workshop)		31 700	
	DSAs		27 360	
	External evaluation		15 000	

DSA: daily subsistence allowances.

**Appendix 9****9 TERMS OF REFERENCE FOR KEY PERSONNEL****9.1 Project Leader**

Project Leader will be **Prof. Dr. Joe Kwarteng** (University Cape Coast, Ghana).

The specific tasks of the Project Leader are:

- a) Overall co-ordination and supervision of the time schedule;
- b) Integration of the project into the hosting university (UCC);
- c) Establishment of university courses on food standards;
- d) Linking the didactical e-learning tool with an information system for professional users;
- e) Communication with external partners, regional universities, public and private entities of food quality infrastructure;
- f) Establishment of a supporting network of end-users, once the information system and the updating procedure is operational;
- g) Reporting and accounting to STDF and the monitor.

**9.2 Management Board**

The Management Board will consist of the Vice-Chancellor and the Registrar of UCC.

The specific tasks of the Management Board are:

- a) Integration of the project into the university mainstream;
- b) Management of personnel and facilities;
- c) Accounting;
- d) Integration of project activities into the regular university activities at the end of the project.

**9.3 Tutor and Module Programmer**

There will be up to three Scientific Assistants (PhD-level, senior lecturers; 60 person months in total; part-time) for the work with students and curricula.

The specific tasks of the Scientific Assistants are:

- a) Characterisation of the coverage of "food standards" in curricula;
- b) Accomplishment of university courses on food standards involving the update of information and sources for food standards;
- c) Supervision of students;
- d) Linking the contents with the e-learning tool;
- e) Scientific evaluation of the project (as basis for the PhD-Thesis).

The Scientific Assistants are expected to have a high degree in food production and processing sciences or food quality control and should be able to develop didactical procedures and supervise students, i.e.

he/she should have a qualification as "teacher" and should have communication skills. An intensive interaction with the IT-section of the project is required.

There will be up to three Technical Assistants (60 person months in total; 2 part-time, 1 full-time) for the programming of the e-learning tool and Internet information system.

The specific tasks of the Scientific/Technical Assistant are:

- a) Procurement of suitable hard- and software for the project;
- b) Maintenance of computers and of the Internet connection;
- c) Transformation of the reference book on CD into an e-learning tool;
- d) Technically establish the e-learning tool for use by students and implement feed-backs;
- e) Organise and perform surveys in the Internet for sources for food standards and set up a document management;
- f) Organise a user management and the administration of user fees;
- g) Establish and maintain an Internet presentation of the e-learning tool and access to it;
- h) Technically arrange the link between the e-learning tool and the information system for professional users.

The Technical Assistants are expected to have a degree in information technology and should have experiences in database maintenance and web design. Besides that, he/she should have an affinity to food technology and should have communication skills; an interaction with students is required.

#### **9.4 Students**

Students will participate in courses of food safety and quality standards and will perform guided surveys of the topic in the Internet in order to facilitate a continuous update of the food safety information system. Students will also participate in the development and testing of the web design of the e-learning tool and information system. Although the number of PC working places is limited to 10, a large number of students can work in parallel courses.

#### **9.5 Short-term experts**

Short-term experts from the co-implementing organisations FAO-AGNS, are supposed to provide in-depth on-the-job trainings to the assistants responsible for content-development of the e-learning tool and the information system on:

- a) food standards based on the content of the 'Practitioners' Reference Book';
- b) internet research strategies and tools for the regular updating of the contents.

Once the didactical procedure for updating the e-learning tool and the information system has been established, an external expert is supposed to strengthen the quality assurance of this procedure, i.e. the complete coverage of relevant sources for standards and regulations.

In addition short-term experts may support the communication between the project and other institutions, as well as the integration of the project into the mainstream of curricula in Ghana.

Qualifications for the short-term experts most likely overlap with the necessary expertise of the monitor and final evaluator (see point 9.6).

## 9.6 Monitor and Evaluator

Principal outputs of this project are an e-learning tool and information system established in the Internet and a didactical procedure to continuously update the tool embedded in curricula. The Monitor and Evaluator should therefore have the following qualifications:

- a) Knowledge on the scope of food quality and safety standards;
- b) Knowledge in information technology, in order to be able to evaluate the quality of programming;
- c) Knowledge on procedures of food quality and safety management, in order to be able to evaluate the usefulness of the information system for the end users;
- d) Knowledge on the regional scene of potential end users in the food quality infrastructure, in order to evaluate the reach of the project;
- e) Auditing.

It is envisaged that the role of the Monitor and the Evaluator is split. The Monitor (e.g. GTZ & MOAP) could serve as advisor during the course of the project, while the external Evaluator will accomplish the same tasks at the end of the project.

## Appendix 10

### 10 IT EQUIPMENT

This project requires IT equipment for the development of the e-learning tool, the updating of the information system and the access of the food quality infrastructure to the information system via the Internet. In the following, the requested items are listed.

#### 10.1 Personal computers

- a) 10 personal computers (estimated costs 1 200 US \$ each) including peripheral devices;
- b) 1 server (estimated costs 2 000 US \$) including peripheral devices and networking equipment.

#### 10.2 Internet access

- c) Costs for a safe and speedy provider for Internet access (2-year contract; estimated costs 2 400 US \$).

#### 10.3 User licences

- d) Basic office software is included in item (a);
- e) Framework programme for creating the e-learning tool and the information system database (estimated 2 000 US \$);
- f) Web page designer (estimated 1 000 US \$).