

The Project for Strengthening  
the Capacity of Tumba College of Technology  
Phase-2 (1<sup>st</sup> Year)

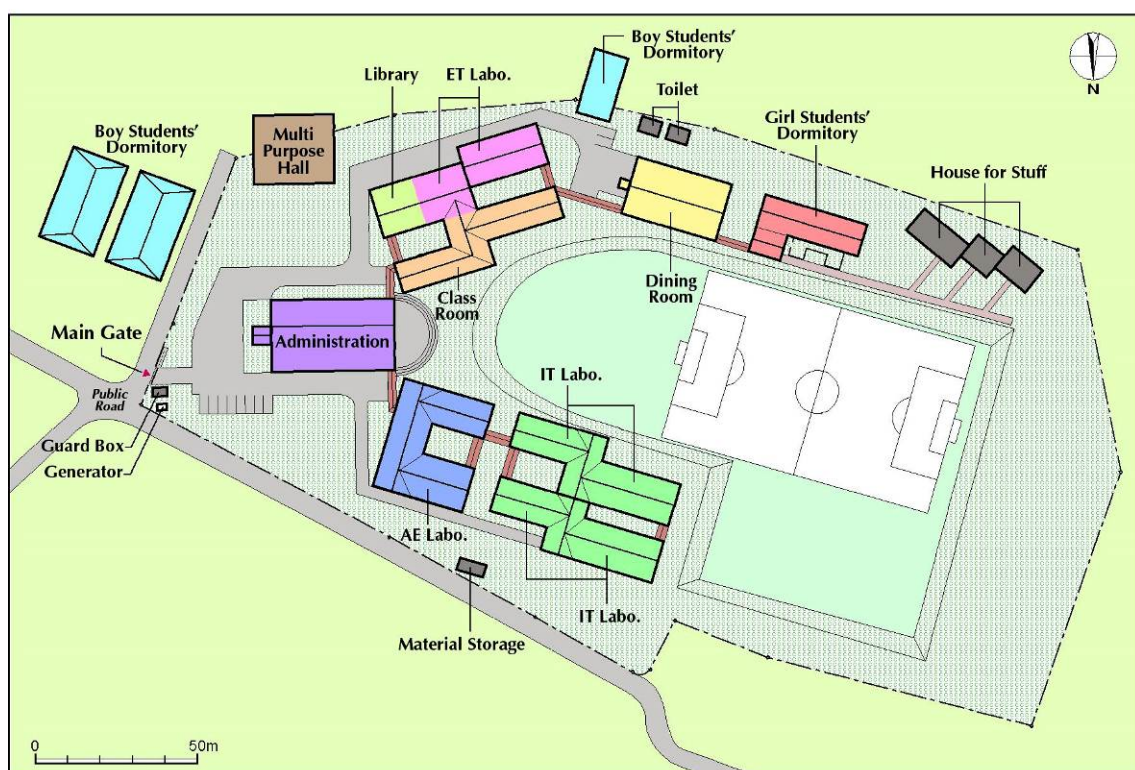
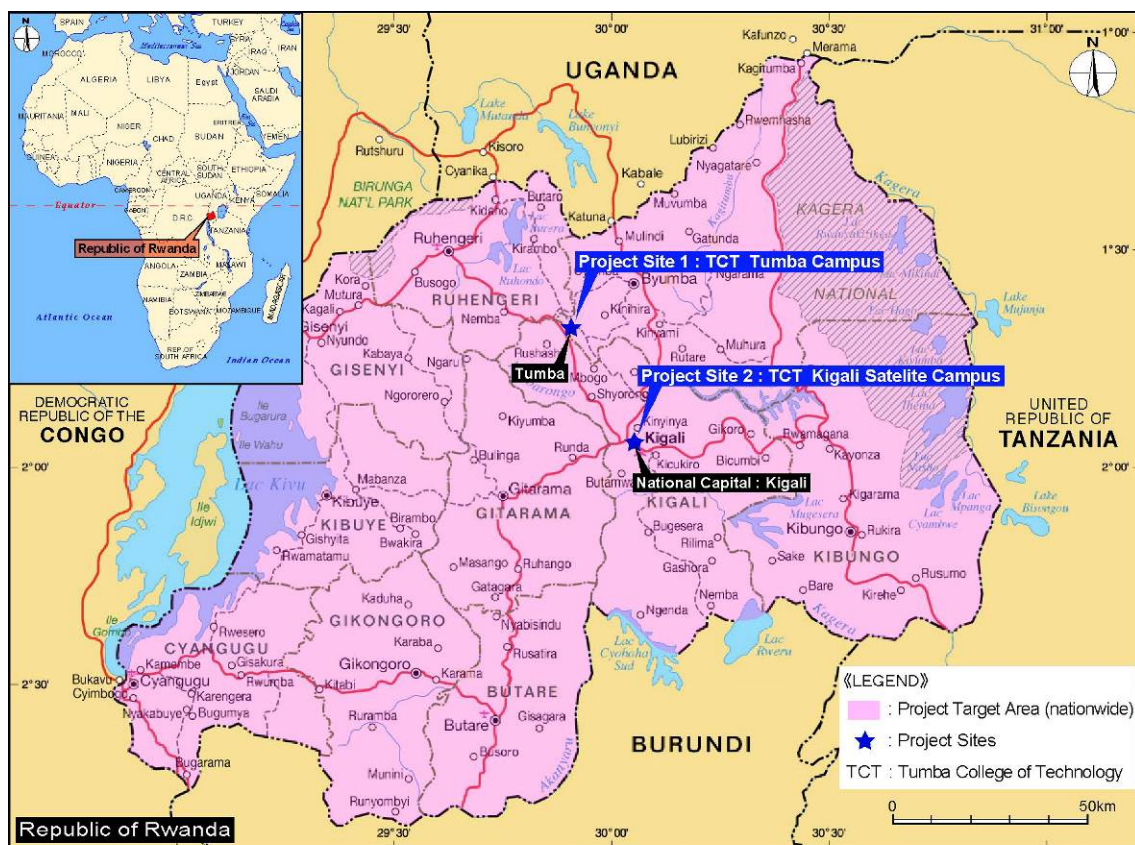
The Republic of Rwanda

Project Progress Report (1<sup>st</sup> Year)

December 2013

System Science Consultants Inc. (SSC)









## Photos of Project Activities



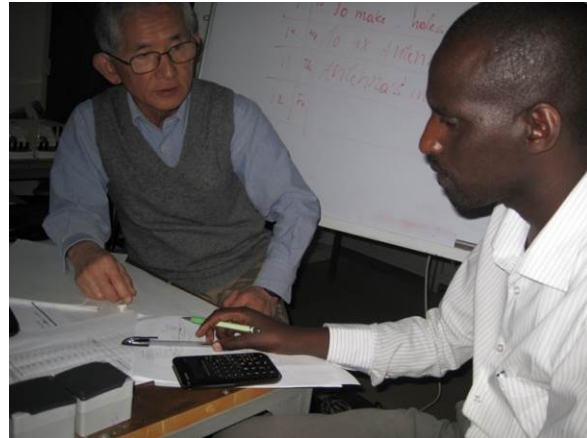
First JCC



Needs Survey at Sorwathe Tea Factory



ET Training on Automation Technologies



ET Training on Insect Trap Development



IT Training on Leave Management System  
Development



Driving Examination System Development  
(Presentation to the Traffic Police)



Solar Water Heater Installation Site Visit



AE Training on AutoCAD



Workshop on Performance Contract  
Development



Annual Action Plan Making



TCT Annual Event Calendar Making



Annual Action Plan Q1 Monitoring WS





Good Practice Sharing Workshop



Experience Sharing Meeting on Tracer  
Survey with WDA



IAP Follow-up Workshop



Third Country Training : JKUAT  
(Interview on developed products in JKUAT)



Third Country Training : TUM  
(Interview on HR Management)



Production Unit Launching Ceremony

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## List of Accornyms and Abbrebiations

AE	Alternative Energy
AP	Action Plan
CCTV	Closed-Circuit Television
DAP	Dean of Academic Programs
EDPRS2	The Second Economic Development and Poverty Reduction Strategy
EEPIS	Electronic Engineering Polytechnic Institute of Surabaya
ESSP	Education Sector Strategic Plan
ET	Electronics and Telecommunications
FRW	Rwandan Franc
GP	Good Practice
HOD	Head of Department
IAP	Industrial Attachment Program
ICT	Information and Communication Technology
ICRC	International Committee of Red Cross
IPRC	Integrated Polytechnic Regional Center
IT	Information Technology
JCC	Joint Coordinating Committee
JICA	Japan International Cooperation Agency
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KIE	Kigali Institute of Education
KIST	Kigali Institute of Science and Technology
NUR	National University of Rwanda
OJT	On-the-Job Training
PDCA	Plan-Do-Check-Act
PDM	Project Design Matrix
PSF	Private Sector Federation
PU	Production Unit
R/D	Record of Discussions
RDB	Rwanda Development Board
SFB	School of Finance and Banking
TCT	Tumba College of Technology
TOR	Terms of Reference
TUM	Technical University of Mombasa
TVET	Technical and Vocational Education and Training
VTC	Vocational Training Centre
WDA	Workforce Development Authority



## 1. Background

Rwanda's Vision 2020 aims at a knowledge-based and technology-led economy and gives high priority on human resource development in the field of science and technology. The industrial sector, however, faces serious shortages of practical technicians as a consequence of the genocide which occurred in 1994. Also in the educational sector, it is urgently needed to increase the opportunity of the secondary and upper level education, as it has been focused on expanding the basic education. Rwanda's Educational Sector Strategic Plan for 2010-2015 (ESSP 2010-2015) aims at improving education, particularly skills development, to meet the labor market demand, by increasing the coverage and quality of nine-year basic education and strengthening post-basic education, which includes technical and vocational education and training (TVET).

Accordingly, the government of Rwanda decided to establish a College of Technology with a curriculum aimed at producing higher technicians and set up Tumba College of Technology (TCT) in July 2007. In this effort, the government of Rwanda, in collaboration with JICA, conducted a five-year project, the "Project for Strengthening the Capacity of Tumba College of Technology" from July 2007 to June 2012, which resulted in the strengthening of academic and administrative capacity of the school, and the establishment of the TCT as an effective A1 level institution in Rwanda. Further, during this project phase, many attempts were made to strengthen the tie between the school and the industry, which brought a number of positive effects, for instance, reflection of industrial needs to the curriculum, implementation of industrial attachment programs, and improving the employment rates of TCT graduates. These practices were taken up by the Rwandan government as good practices, and disseminated to other Technical and Vocational Education and Training (TVET) schools.

On the other hand, TCT faces some challenges. For instance, TCT is lacking continuous skills development system for its academic and administrative staff. What is more, in order for other TVET schools to effectively benefit from TCT's good practices, dissemination activities need to be more strengthened. In this understanding, the Government of Rwanda requested the Japanese Government to further carry out "the Project for Strengthening the Capacity of Tumba College of Technology Phase 2".

This project aims to strengthen the capacity of TCT, focusing on skills development of its academic staff and improvement of school management, and to advance the quality of TVET sector in Rwanda, through providing good practices of TCT to the Government of Rwanda.

This report contains the progress of “the Project for Strengthening the Capacity of Tumba College of Technology Phase 2” during its first year, covering the period from March to December 2013.

## 2. Project Overview

### 2.1 Project Title

Project for Strengthening the Capacity of Tumba College of Technology Phase 2 in Republic of Rwanda

### 2.2 Project Period

From March 2013 to February 2018 (5 years)

### 2.3 Overall Goal

TCT's good practices are applied to other TVET institutions in Rwanda

### 2.4 Project Purpose

TCT becomes a model institution that provides Government of Rwanda with effective approaches for improving TVET sector.

### 2.5 Outputs

Output 1 : Continuous capacity development system is established in TCT for the provision of practical technical education

Output 2 : Improvement mechanism of school management is established in TCT

Output 3 : WDA and TCT share good practices useful for TVET sector

### 2.6 Activities

1.1 Formulate action plan of the production unit

1.2 Set up Production Unit Management and Operation Guideline

1.3 Conduct a needs survey

1.4 Conduct production unit activities

1.5 Conduct technical training according to the production unit activity

1.6 Review and evaluate production unit activities

2.1 Formulate school management plan

2.2 Design a monitoring system that fits to the actual situation of TCT

2.3 Conduct the monitoring

2.4 Identify issues to be tackled

2.5 Share the issues to be tackled among TCT staff

2.6 Discuss the causes of issues and measures for improvement among TCT staff

- 2.7 Implement the measures for improvement
  - 2.8 Carry out the activities of 2-3 to 2-7 above as a cycle
  - 2.9 Conduct an internal satisfaction survey for TCT's school management
- 
- 3.1 WDA and TCT identify issues in TVET sector for the quality improvement
  - 3.2 TCT reviews TCT's activity regularly
  - 3.3 WDA and TCT summarize TCT's good practices and lessons learned
  - 3.4 TCT supports WDA to implement the dissemination of good practice



### 3. Project Inputs

#### 3.1 Deployment of JICA Experts and Local Consultant

Some 9 JICA experts including one from Nepal were dispatched during the 1<sup>st</sup> project year for a total of 31.2 man-months. The deployment period of each expert is shown in the following Table 1.

Table 1 : JICA Experts Deployment (1<sup>st</sup> year)

Title	Name	Year	2013												M/M
		Month	1	2	3	4	5	6	7	8	9	10	11	12	
Chief Advisor / TVET Policy 1	Ryuichi Nishiyama			2/28	1.3				7/6	1.2		10/29	1.5		4.00
Deputy Chief Advisor / TVET Policy 2	Mariko Ikawa				3/19	1.5				8/4	2.5			12/12	4.00
Production Unit 1	Tatsumi Aragaki						5/2		7/2	2.0		10/1	2.0		4.00
Training Planning / Production Unit 2	Nana Kondo					4/15	3.0			8/30				11/29	6.00
Information Technology	Naoyuki Sato								7/13	1.2		0.8		12/11	2.00
Electronics and Telecommunication	Junichiro Tomiyasu							6/11	1.3			10/13	1.0		2.30
Alternative Energy	Ravi Chhetri						5/14	2.5	7/27					12/1	2.50
School Management 1	Yumiko Ono					4/18	1.3					9/19	1.6		2.90
School Management 2/ Project Coordinator	Erika Asada				3/16	0.97	5/26					9/19	2.53	11/9	3.50
Total (M/M)						4/13								12/3	31.20

\* 4days (9/30-10/3) Visit India for another project

Besides the above project members, the project made a sub-contract with EEPIS (Electronic Engineering Polytechnic Institute of Surabaya) and invited an expert from Indonesia for the period from August 4<sup>th</sup> to September 14<sup>th</sup> 2013 (42 days). He conducted training to ET Department and Production Unit in the area of Electronics and Telecommunication.

#### 3.2 Equipment

The project purchased the equipment listed in the Table 2 during the 1<sup>st</sup> project year.

Table 2 : List of Equipment

Currency: RWF

Equipment	Qty	Amount	Usage	Installed Place
Server	1pc	5,236,000	System development	Server room
Laptop PC	1pc	560,000	System development	IT Support room
Welding machine	1pc	1,800,000	Work outside campus	AE Workshop
Whiteboard	1pc	78,000	Workshop and meeting	JICA Experts' office
Photocopier	1pc	3,873,940	Photocopy WS documents	JICA Experts' office

### 3.3 Local Costs

About JPY 12 million<sup>1</sup> was spent to cover the local expenses for implementation of the project during the 1<sup>st</sup> project year. These local costs were mainly utilised for hiring local staff and cars, local consultant services, purchase of equipment, travel/transportation, training-related expenses, printing documents, purchasing consumables and others. The breakdown of the local costs is given in the Table 3.

Table 3 : Breakdown of Local Costs (1<sup>st</sup> year)

Items	Amount (JPY)
Local Staff	3,120,963
Consumables	1,574,725
Travel/transport related expenses	945,256
Communication	235,892
Printing and photocopying documents	139,121
Car hire and maintenance	859,161
Workshops, Trainings and Events	429,390
Equipment	1,777,931
Local consultant contract	3,261,087
Total	12,343,526

Note 1: The expenses for JICA experts are not included.

Note 2: The above amount is based on the expenses before approval of JICA.

### 3.4 Local Consultant Contract

The project hired 2 local consultants in the 1<sup>st</sup> project year. The services worth USD 33,129 were contracted out. The services provided were 1) Technical Training on Automation Technology by an Indonesian expert and 2) Production Unit Needs Survey. The details are given in the Table 4.

Table 4 : Local Consultant Contracts

Currency: USD

	Contractor	Contract Period	Contract Amount	Consultancy Service
1	Electronic Engineering Polytechnic Institute of Surabaya (EEPIS)	29 Jul – 30 Sep 2013	10,641	Technical Training on Automation Technology
2	Economic Development & Sustainable Energy Planning Ltd (ECODESEP)	1 Aug – 13 Sep 2013	22,488	PU Needs Survey
Total			33,129	

<sup>1</sup> This is equivalent to approximately RWF 80 million. (1 RWF = 0.154 JPY)

### 3.5 Third Country Training

The training in the third country this year was conducted in Kenya for 5 days from 18-22 November 2013 for 4 TCT staff members. They have learned good practices in the area of production unit and school management from 2 universities, namely, 1) Jomo Kenyatta University of Agriculture and Technology and 2) Technical University of Mombasa. The participants and training content are provided in the following table.

Table 5 : Participants and Training Contents of the Third Country Training

	Name	Title	Training Content
1	Mr. NZITATIRA M.Wilson	Director of Administration and Human Resource Management	School Management (HR management/ Performance Contract)
2	Mr. RUTAYISIRE Tonny	Lecturer in Information Technology Department, Incubation Center Coordinator	PU Management, IT technologies, Career Support
3	Mr. KAMANZI Emmanuel	Head of Production Unit, Lecturer in Alternative Energy Department	PU Management, AE technologies
4	Mr. NSHIMIYIMANA Arcade	Assistant Lecturer, in Electronics and Telecommunication	PU Management, ET technologies

### 3.6 Inputs from Rwandan side

As of June 2013, 84 staff were employed at TCT. Out of them, 24 were administrative staff, 42 were academic staff and 18 were technical/support staff. Based on the project activities, the project worked with various staff as its counterparts.

The TCT recurrent budget implementation is shown in Table 6. The Rwandan government has allocated the total of approximately RWF 2 billion to TCT in 2012/13 and 2013/14 (As of Oct 2013). The budget was utilized for school management such as payment of staff salaries and purchase of goods.

Moreover, at the time of IAP (Industrial Attachment Program) Follow-up Workshop co-organized by WDA (Workforce Development Authority) and JICA, the costs such as training facilities and meals during the workshop amounting to 1,675,000RWF were borne by WDA.

Table 6 : TCT Recurrent Budget Implementation (Currency : RWF)

		2012/13	2013/14
Revenue		1,821,880,875	178,196,519
Expenditure	(Breakdown)	1,921,910,465	177,854,124
	Salary and Wages	226,366,835	60,674,514
	Purchase of Goods	335,974,921	85,691,689
	Social Assistance	2,326,515	2,000,000
	Other expenses	49,573,796	4,406,280
	Capital expenditure	1,307,668,398	25,081,641

\* Fiscal year starts in July and ends in June.

\*\* Revenue and expenditure for 2013/14 are as of 31 October 2013.

## 4. Project Implementation Process

### 4.1 Changes in Project Design Matrix

No changes were made in the project PDM (Project Design Matrix) during the 1st project year.

### 4.2 Joint Coordinating Committee

The 1st Joint Coordinating Committee (JCC) was held on 2 April 2013 at Ministry of Education. The Inception Report was officially approved after the explanation of Project Outline and Plan of Operation. The details of the meeting are given in the Annex 1: Minutes of the 1st Joint Coordinating Committee.

### 4.3 Activities Conducted in the First year

#### 4.3.1 Activities for Output 1

Project output 1 is described as follows: “continuous capacity development system is established in TCT for the provision of practical technical education”. In order to achieve this output, the following activities, shown in the Table 7, were carried out by the project.

Table 7 : Activities of Output 1

1-1. Formulate action plan of the production unit	<ul style="list-style-type: none"><li>• Developed PU action plan (March)</li><li>• Revise PU action plan based on the feedbacks from the retreat for Action Plan 2013-14 Quarter 1 Review and Quarter 2 Planning (October)</li></ul>
1-2. Set up Production Unit Management and Operation Guideline	<ul style="list-style-type: none"><li>• Agreed on the guideline structure and the items that require further analysis (April) (See Annex 2)</li><li>• Visited other institutions to learn their experience of running PU activities (Visited institutions: VTC Mpanda, IPRC-Kigali, KIE, SFB, NUR, KIST) (May, July, October) (See Annex 3)</li><li>• Conducted a workshop to share the experiences from other institutions, and discussed the way forward for TCT PU (May, November) (See Annex 3, 4)</li><li>• Gathered information/ general view regarding income generation activities conducted by public teaching institutions (Visited institutions : WDA, RDB,PSF) (October)</li></ul>

	<p>(See Annex 3)</p> <ul style="list-style-type: none"> <li>• Conducted workshops and to determine the core structure of PU (May-July, October-December) (See Annex 4)</li> <li>• Developed “Staff Incentive Policy” (October-December) (See Annex 5)</li> </ul>
1-3. Conduct a needs survey	<ul style="list-style-type: none"> <li>• Agreed on needs survey procedures and carried out necessary preparations, including tender and negotiation procedures to hire local consultant (May-July)</li> <li>• Developed TCT PU inventory, which explains possible areas of PU activities (August)</li> <li>• Conducted needs survey (August – September)</li> <li>• Shared needs survey result among TCT PU (October)</li> <li>• Summarized the findings and finalized the needs survey report (September – November) (See Appendix 1)</li> </ul>
1-4. Conduct production unit activities	<ul style="list-style-type: none"> <li>• Conducted following PU activities (April – December) (See Annex 6, 7) <ul style="list-style-type: none"> <li>➤ ET <ul style="list-style-type: none"> <li>✧ CCTV repair &amp; maintenance service (proposal making and presentation)</li> <li>✧ Sensor applications to an industrial factory (research, proposal content development)</li> <li>✧ Presentation of robotic technologies (community outreach, did not realize after coordination)</li> </ul> </li> <li>➤ IT <ul style="list-style-type: none"> <li>✧ PC repair &amp; maintenance service, IT network mapping development (proposal making and presentation)</li> <li>✧ Open access to TCT IT facilities for external partners (community outreach, did not realize after coordination)</li> <li>✧ Leave Management System development (research &amp; development)</li> <li>✧ IT driving examination system development (proposal making, presentation, and research &amp; development)</li> </ul> </li> <li>➤ AE <ul style="list-style-type: none"> <li>✧ Solar water heater product development and installation (proposal making, presentation, and research &amp; development)</li> </ul> </li> </ul> </li> </ul>



	<ul style="list-style-type: none"> <li>✧ Training on improved cook stoves and briquette making (proposal making and presentation.)</li> <li>✧ Insect trap product development using solar panel (proposal making, presentation, and research &amp; development)</li> <li>✧ Biogas plant installation project funded by International Committee of Red Cross (ICRC)</li> </ul>
1-5. Conduct technical training according to the production unit activity	<ul style="list-style-type: none"> <li>• Conducted following technical trainings <ul style="list-style-type: none"> <li>➤ ET <ul style="list-style-type: none"> <li>✧ Sensor Technologies (June)</li> <li>✧ Power supply unit design, proto-type development, experiment and evaluation (June)</li> <li>✧ Experiment on frequency-shift keying (July)</li> <li>✧ Printed circuit board design (July)</li> <li>✧ Operation procedures of measuring instruments (June-July)</li> <li>✧ Control system and automation (August- September)</li> <li>✧ Sensor application and installation (November)</li> </ul> </li> <li>➤ IT <ul style="list-style-type: none"> <li>✧ Leave management system development (July- August)</li> <li>✧ IT driving examination system development (July-August, October-November)</li> </ul> </li> <li>➤ AE <ul style="list-style-type: none"> <li>✧ AutoCAD (May – June)</li> <li>✧ Solar water heater product development (June- July)</li> <li>✧ Insect trap development (June-July)</li> </ul> </li> </ul> </li> </ul>
1-6. Review and evaluate production unit activities	<ul style="list-style-type: none"> <li>• Reviewed the results of conducted PU activities and conducted a workshop on problem analysis &amp; solution finding (October) (See Annex 8)</li> </ul>
1-7. Conduct a third country training	<ul style="list-style-type: none"> <li>• Conducted a third country training to learn the effective management of PU and research experiences in advanced institutions (Visited country: Kenya, Visited institutions: Jomo Kenyatta University of Agriculture and Technology (JKUAT), and Technical University of Mombasa (TUM) (November)</li> <li>• Summarized the findings and reported to TCT management</li> </ul>

	(December) (See Annex 9)
1-8. Develop PU marketing documents	<ul style="list-style-type: none"> <li>Developed PU marketing documents (July) (See Annex 10)</li> </ul>
1-9. Conduct PU launching ceremony	<ul style="list-style-type: none"> <li>Developed a concept note of the PU launching ceremony and Planned PU launching ceremony and organized for preparation (October-November)</li> <li>Conducted PU launching ceremony (November)</li> <li>Reviewed feedbacks gained from PU launching ceremony and examined the follow-up (December) (See Annex 11)</li> </ul>

#### 4.3.2 Activities for Output 2

Project Output 2 aims at “Improvement mechanism of school management is established in TCT.” The priority areas for the 1st project year were development of Action Plan and human resource management. Individual activities were conducted to achieve Output 2, considering the following 8 steps of PDCA cycle specified in PDM. The detailed activities are listed in Table 8.

- (1) Formulate school management plan
- (2) Design a monitoring system that fits to the actual situation of TCT
- (3) Conduct the monitoring
- (4) Identify issues to be tackled
- (5) Share the issues to be tackled among TCT staff
- (6) Discuss the causes of issues and measures for improvement among TCT staff
- (7) Implement the measures for improvement
- (8) Carry out the activities of (1) to (7) above as a cycle

Table 8 : Activities of Output 2

2-1. Support to develop Action Plan and its Monitoring	<ul style="list-style-type: none"> <li>Set “Outcomes” and “Outputs” of Action Plan (AP) 2013-14 (See Annex 12) together with principal and vice principals based on the TCT Strategic Plan. (April-May)</li> <li>Supported units and departments to set “Activities” to achieve “Outputs”. (May)</li> <li>Conducted Action Plan Development Workshop. Each unit and department shared the set “Activities” among the management members, checked the relevance and finalized</li> </ul>
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	<p>the “Activities”. (May)</p> <ul style="list-style-type: none"> <li>• Supported units and departments to set “Tasks” under each “Activity”. (June-July)</li> <li>• Conducted a retreat for Action Plan 2013-14 Quarter 1 Review and Quarter 2 Planning. (October)</li> <li>• Provided recommendations on how to reflect the lessons learned from Q1 review and how to improve the next review retreat. (October-November)</li> </ul>
2-2. Support to improve Performance Contract and Human Resource Management Guideline	<ul style="list-style-type: none"> <li>• Provided advice to Director of HR management on how to improve HR management guideline, which reflects the current situations. (June-July)</li> <li>• Conducted a workshop for the management members aiming to prepare individual performance contract, which is linked to Action Plan. (August)</li> <li>• Prepared a list of detailed behavior to objectively evaluate “Behavior” specified in the performance contract and share the list with Director of HR management. (October)</li> <li>• Supported to develop a template of monthly report, which is used as a monitoring tool of performance contract. (October-November)</li> </ul>
2-3. Support to develop Annual Event Calendar	<ul style="list-style-type: none"> <li>• Supported PR officer to develop TCT Annual Event Calendar. (September-November) (See Annex 13)</li> </ul>
2-4. Conduct Third Country Training	<ul style="list-style-type: none"> <li>• Conducted Third Country Training for TCT staff to learn good practices from another country in the area of HR management and career support. (November) <ul style="list-style-type: none"> <li>✧ Visited Country: Kenya</li> <li>✧ Visited Universities: 1) Jomo Kenyatta University of Agriculture and Technology and 2) Technical University of Mombasa)</li> </ul> </li> <li>• Supported the participants to prepare a report and present it in the management meeting. (December) (See Annex 9)</li> </ul>
2-5. Conduct School Management Improvement Survey	<ul style="list-style-type: none"> <li>• Conducted School Management Improvement Survey to measure the impacts and effectiveness of activities to improve school management. (November - December)</li> </ul>

### 4.3.3 Activities for Output 3

Output-3 in the project is “WDA and TCT share good practices useful for TVET sector”. The project performed the following activities to achieve Output-3, with the activity details shown in the Table 9 below.

Table 9 : Activities of Output 3

3-1. Establish a system to share TCT's GP with WDA	<ul style="list-style-type: none"> <li>• Conducted GP Sharing Committee meetings consisting of WDA and TCT staff several times. The members are three from WDA Partnership Department including its director, two from TCT (Vice Principal Administration and Quality Assurance Officer), and one JICA project expert.</li> </ul>
3-2. Follow up for sharing GP on IAP	<ul style="list-style-type: none"> <li>• Supported staff members of WDA Partnership Department to visit 18 TVET institutions, which have participated in the IAP Workshop during the project phase-1, and to conduct IAP Follow-up Survey by questionnaire. (July)</li> <li>• Conducted GP Sharing Workshop for two days at Kigali calling for ILOs of 23 TVET institutions all over Rwanda, private companies, and other donors under co-organization by WDA and JICA. (See Appendix 2) (August)</li> <li>• Advised WDA, based on the above follow-up workshop, to revise the IAP Logbook and to distribute to the TVET institutions. (October)</li> </ul>
3-3. Share GP on graduate tracer survey	<ul style="list-style-type: none"> <li>• Suggested WDA to call for a meeting on sharing TCT's method of conducting its graduate tracer survey with IPRCs and other donors. The project supported QA officer of TCT to make an effective presentation in the meeting. (June) (See Annex 14)</li> <li>• Supported that TCT could conducted the tracer survey by its own initiative (September)</li> <li>• Advised QA officer to extract the notice points and lessons learned from his practical experience, and to make a implementation report on the tracer survey (See Appendix 3). (November)</li> <li>• Shared the Tracer Survey Report 2013 and the Implementation Report with WDA. (December)</li> </ul>

## 5. Project Achievements

### 5.1 Baseline

Baselines of the project outputs as well as the project purpose at the time of project commencement, i.e. March 2013, are explained below.

#### 5.1.1 Baseline of Output 1

Baseline of output1 is shown in Table 10 below, according to its objectively verifiable indicators.

Table 10 : Baseline of Output 1 (As of Mar 2013)

PDM Indicators	Baseline
1-1. Production Unit Management and Operation guideline is formulated and activities are conducted according to the guideline	<ul style="list-style-type: none"><li>• Establishment of the PU core structure and the basic operation: Detailed studies and discussions undone</li><li>• TCT PU administration and management guideline: None existing</li></ul>
1-2. The percentage of academic staff who have been involved in production unit activities for more than once: More than 80% by the end of the project	<ul style="list-style-type: none"><li>• Number of academic staff involved in PU activities: 5 staff / 46 academic staff<ul style="list-style-type: none"><li>• 5 academic staff were assigned as PU members<sup>2</sup></li><li>• Breakdown:<ul style="list-style-type: none"><li>✧ Head of PU 1 academic staff</li><li>✧ Department representatives 4 academic staff (ET 1, IT 1, AE 2)</li></ul></li></ul></li></ul>
1-3. Number of activities adopted and implemented by production unit: at least 6 activities/year	<ul style="list-style-type: none"><li>• Number of adopted PU activities: 1</li><li>• Breakdown:<ul style="list-style-type: none"><li>✧ Biogas plant installation project funded by ICRC</li></ul></li></ul>
1-4. Improvement of technical skills of academic staff in their respective field of expertise	<ul style="list-style-type: none"><li>• Technical skills level of academic staff:<ul style="list-style-type: none"><li>✧ Able to teach and conduct classes in the concerned field, yet practical skills are not sufficient to conduct business activities targeted to external customers</li></ul></li></ul>

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<sup>2</sup> 1 administrative staff from finance unit was also assigned as PU member, yet excluded from the list, since the objectively verifiable indicator is targeted to academic staff.

	<p>✧ Effective approach to measure skills development level of TCT academic staff is under consideration by the project.</p>
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In below, the details are explained for output 1 related baselines not captured in the objectively verifiable indicators of the PDM.

#### ① PU set-up and its operational structure

PU set-up and its operational structure at the time of project commencement were as follows;

- Establishment of the unit : February 2013
- Allocated office : None
- PU staffing :
  - Head of PU 1 (fulltime PU staff)
  - Representative from finance unit 1 (non-fulltime PU member)
  - Department representatives 4 (ET 1, IT 1, AE 2) (non-fulltime PU member)

As preconditions of the project, it was agreed in the Record of Discussions (R/D) to establish a production unit with a head of the unit and basic facilities such as an office set-up. The head of PU was appointed before the project commencement. However, the unit started its operations without proper office set-up.

As for the PU staffing, representatives were appointed from each department and finance unit. Administrative staff to support PU operation, however, was not placed in the unit, at the time of project commencement. No additional staff, neither academic nor administrative, was hired for the unit start-up.

At the time of project design, the Japanese detailed planning survey team and TCT agreed to place a representative from each department as a PU member, whose departmental workloads are exempted to none, so that he/she can fully devote his/her time to PU activities. However, due to the problems of understaffing in TCT, the four representatives assigned as PU members kept concurrent responsibilities of both respective departments and PU.

#### ② PU budget

There were not budgetary allocations designated for PU within 2013/14 TCT budget



compilation, and accordingly PU was compelled to start its operation without having any sufficient budget to support its activities. This was caused by the fact that the action policy of PU was not clear at the time of 201/14 TCT development in December 2012. PU was unable to develop a detailed action plan, nor budget plan for its activities. PU, therefore, needs to conduct its activities without TCT allocated budget till 2014/15 budgetary compilation is confirmed in July 2014.

③ Enthusiasm of TCT academic staff to participate in PU activities

At the time of project commencement, the core concept of PU, such as its structure, functions and roles, were not clear. Accordingly, TCT did not have a shared understanding of what PU is. It was also unclear for TCT staff as to how they could participate in PU related activities. As a result, the project was commenced without sufficient levels of enthusiasms from TCT staff to participate in PU activities.

④ General guidelines concerning income generation activities of TVET institutions

Rwandan government is encouraging TVET and higher learning institutions to strengthen their financial self-sufficiencies, and to conduct more income generation activities. However, at the time of project commencement, there were no regulations or guidelines provided by the government, and each institution is conducting business activities in its own individual way.

### 5.1.2 Baseline of Output 2

Based on the indicators specified in PDM, baseline information of Output 2 is given in the following Table 11.

Table 11 : Baseline of Output 2 (As of Mar. 2013)

PDM Indicators	Baseline
2-1. PDCA cycle on school management is in practice.	PDCA cycle is not in practice on school management.
2-2. Satisfaction level of TCT staff to the school management is improved.	Results of School Management Improvement Survey targeted at TCT staff are currently under analysis.

With regard to the Indicator 2-1, the concept of PDCA (Plan-Do-Check-Act) cycle was little understood in different areas of school management at the beginning of the project.

Action Plan, which was the priority area of this year, was not well developed considering the link with Strategic Plan and adequate involvement of units and departments. Since there was no recognized monitoring and evaluation system where challenges and lessons are shared among the staff, TCT tended to experience the same challenges every year. Similarly, staff performance contract was not well linked to TCT Action Plan or monitored adequately.

With regard to the Indicator 2-2, a survey was conducted for the first time by the project to measure the effectiveness and level of improvement in school management. Instead of measuring satisfaction level of TCT staff in school management, the survey aimed to measure the effectiveness and improvement level recognized by TCT staff. Their perceptions about different areas in school management were asked for both as of November 2012 and November 2013. Therefore, the perceptions as of November 2012 will be used as baseline data. The details will be discussed in “5.2.2 Achievements of Output 2”.

Apart from PDM indicators, it is wise to mention another baseline information of inadequate coordination and communication among units and departments. It is expected to improve their communication so that various units and departments work together as one team to achieve TCT mandates.

### 5.1.3 Baseline of Output 3

The baseline of Output 3 against the indicators described in the PDM at the time of project inauguration is shown in the table below.

Table 12 : Baseline of Output 3 (As of Mar 2013)

PDM Indicators	Baseline
3-1. Regular meeting are held between WDA and TCT for sharing good practices	Regular meeting are not set between WDA and TCT for sharing good practices.
3-2. Dissemination of TCT's good practices to other TVET schools are included in WDA's action plan	Dissemination of TCT's good practices to other TVET schools are not included in WDA's action plan.
3-3. Number of events collaborated between WDA and TCT for the dissemination of TCT's good practices to other TVET schools: 5times during the project period	Number of events collaborated between EDA and TCT for the dissemination of TCT's good practice to other TVET schools: 0 times

Since TCT has performed various activities during the project phase-1, it has accumulated some GPs that are considered useful to other TVET institutions. In the phase-1 the project took on trial TCT's IAP implementation as GP, and supported conducting a workshop co-organized between WDA and TCT for sharing it to other TVET institutions. Although it was found the needs of GP sharing from other schools through this experience, WDA's system is not yet ready at the time of phase-2 inauguration to take GPs that are implementing on the ground and disseminate them to the other institutions.

It is observed that TCT intends to be an advanced model among the TVET institutions in Rwanda. However spontaneous activity is not implemented by TCT for compiling its GPs and sharing them to other TVET institutions.

#### 5.1.4 Baseline of the Project Purpose

The baseline of the project purpose against the indicators described in the PDM at the time of project inauguration is shown in the table below.

Table 13 : Baseline Information of Project Purpose (As of Mar 2013)

PDM Indicators	Baseline
<ul style="list-style-type: none"> <li>TCT's good practices are adopted in the plan of activities of WDA</li> </ul>	TCT's good practice are not adopted in the plan of activities of WDA.
<ul style="list-style-type: none"> <li>Employment rate after one year of graduation : more than 80%</li> </ul>	Employment rate of each batch of the graduates from the tracer survey at March 2013 ; (period after graduation) 1st batch: 86.7% (2 years and 4 months) 2nd batch: 69.1% (1 year and 4 months) 3rd batch: 53.2% (7 months) 4th batch: 26.6% (3 months)
<ul style="list-style-type: none"> <li>Employers' satisfaction rate of TCT graduates after one year of employment: more than 85%</li> </ul>	Employers' satisfaction survey is not yet conducted.

## 5.2 Achievements

### 5.2.1 Achievements of Output 1

Output 1 was set as "Continuous capacity development system is established in TCT for the provision of practical technical education". Achievement status of output1 is shown

in Table 14 below, according to its objectively verifiable indicators.

Table 14 : Achievements of Output 1 (as of December 2013)

PDM Indicators	Achievement status
1-1. Production Unit Management and operation guideline is formulated and activities are conducted according to the guideline	<ul style="list-style-type: none"> <li>Establishment of the PU core structure and the basic operation: <ul style="list-style-type: none"> <li>The core structure of PU was agreed</li> </ul> </li> <li>TCT PU administration and management guideline: <ul style="list-style-type: none"> <li>Developed “Staff Incentive Policy”</li> </ul> </li> </ul>
1-2. The percentage of academic staff who have been involved in production unit activities for more than once: More than 80% by the end of the project	<ul style="list-style-type: none"> <li>Number of academic staff involved in PU activities: 15 staff / 46 academic staff</li> <li>Breakdown of 15 staff <ul style="list-style-type: none"> <li>Head of PU 1 academic staff</li> <li>Department representatives 4 (ET 1, IT 1, AE 2)</li> <li>Others 10 academic staff (ET 2, IT 4, AE 4)</li> </ul> </li> </ul>
1-3. Number of activities adopted and implemented by production unit: at least 6 activities/year	<ul style="list-style-type: none"> <li>Number of adopted PU activities: 11<sup>3</sup> <ul style="list-style-type: none"> <li>Breakdown : ET 3, IT 4, AE 4 (detailed activity list are shown in Table 7)</li> </ul> </li> </ul>
1-4. Improvement of technical skills of academic staff in their respective field of expertise	<ul style="list-style-type: none"> <li>Technical skills level of academic staff: <ul style="list-style-type: none"> <li>Effective approach to measure skills development level of TCT academic staff is under consideration by the project.</li> </ul> </li> </ul>

Below are supplementary explanations for the above listed achievement status of output 1.

#### (1) Establishment of PU Operational Structure

Based on the findings from other institutions and their experiences in operating PU activities, a number of workshops and internal discussions were carried out to determine the operational structure of TCT PU. As explained in the below (2), the

<sup>3</sup> Listed all the individual PU activities conducted in the first year, regardless of the size, status, and results, as the selection procedures are not established yet.

process took much time to determine whether to set-up an independent company. As a result, the achievement in relation to the establishment of PU operational structure went no further than agreeing on the core structure of PU, as shown below.

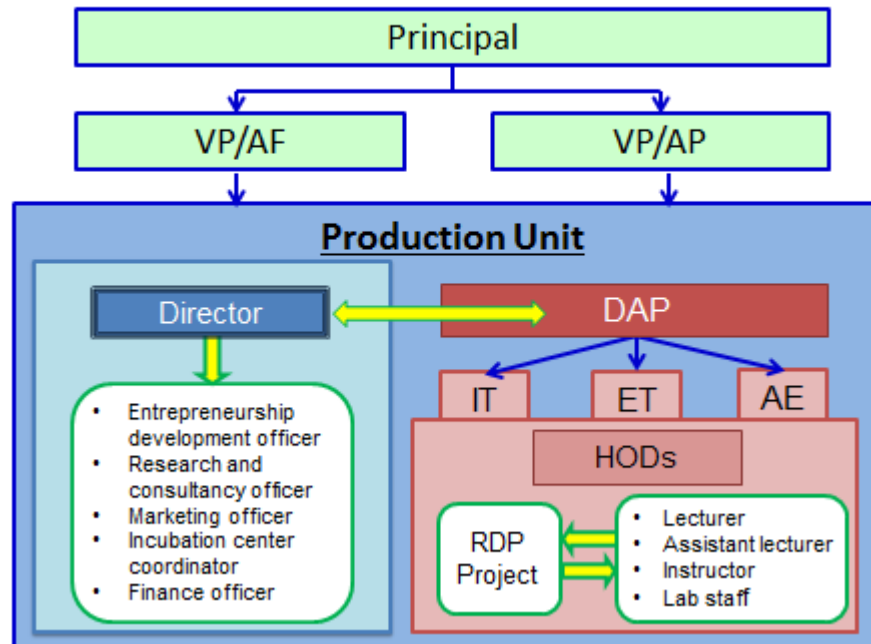


Figure 1 : TCT PU core structure

Reflecting on the challenges faced during the first year of PU activities (see (5) below and Annex 8), it was agreed to place departments as part of PU in this new structure. Head of departments (HODs) are, under supervision of the Dean of Academic Program (DAP), in charge of selection, assigning of staff, monitoring, and evaluation of individual PU projects. The administrative division headed by the head of PU, in turn, is agreed to be in charge of overall management, such as coordination of PU activities, development of PU strategic plan and guidelines, marketing, and networking with external partners.

Details of remaining issues regarding PU operations and its management procedures are to be examined and developed during next year.

## (2) Establishment of an Independent Company

Originally, based on the findings from other institutions, it was agreed to operate PU without setting up an external company, adopting NUR model. This was due to the concerns regarding initial capital and the unclear demarcations between business and

school operations. Also, it was pointed out that company operations, allowing outsourcing and aimed purely at income generation, is not necessarily in accord with the main objectives of PU, which is to set up continuous skills development system. After careful consideration, however, TCT adopted the idea to set-up an external company in order to overcome constraints posed, especially public procurement procedures, to realize efficient income generation activities.

Although the establishment of an external company is one of the options to operate PU, it is still questionable whether an institution should be allowed to use public funds to set-up a company. With understanding the concerns, TCT and the project agreed to put the company operation outside of the project scope. In turn, the project will explore and propose various approaches to realize continuous skills development system within TCT, which does not rely on an external company.

### (3) PU Guidelines

#### <PU Operation Guideline>

Discussions were held among the PU members to brainstorm the structure of PU operational guideline, and agreed on items to be included and issues that require further study and examination (see Annex 2). Then, a study was conducted to learn from the experience of other institutions. Nonetheless, as explained above in (1), the subsequent discussions were centered much on determining the core structure of PU especially in relation to company set-up, and accordingly, other issues regarding detailed PU operations and management procedures are still left to be examined next year.

#### <Staff Incentive Policy> (See Annex 5)

Staff incentive policy was developed to motivate TCT staff to participate in PU activities. Vice Principal Academic Course and Training, Director of Admin and Human Resource, and Head of PU were involved in the process, and developed the policy adopting the workload balancing concept, taking into consideration the already existing “TCT Academic Staff Workload Calculation Guideline” (See Annex 15). After acquiring official approval at the management meeting, the policy will be put into implementation.

### (4) Needs survey (See Appendix 1)

Needs survey was conducted from August to October 2013 by hiring a local consultant. The survey was conducted through interviews based on predesigned questionnaires, and 3 PU members were also involved in the interview process. As a main finding, high

expectations and needs were observed for the provisions of short-term trainings based on TCT related technologies. Furthermore, it was observed that in many cases, needs of the concerned technologies were not properly recognized due to lack of sufficient knowledge among the interviewees. Accordingly, the necessity for TCT related technology advocacy was recognized. Table 15 shows the key findings of the survey.

Table 15 : PU Needs Survey Key Findings

	Short-term trainings	Consultancy	Manufacturing of a product and sales	Research & Development
AE	<ul style="list-style-type: none"> <li>• Briquette</li> <li>• Briquette molds</li> <li>• Improved cook stoves</li> </ul>	Installation, repair and maintenance of <ul style="list-style-type: none"> <li>• Solar system</li> <li>• Biogas system</li> </ul>	<ul style="list-style-type: none"> <li>• Briquette</li> <li>• Briquette molds</li> </ul>	<ul style="list-style-type: none"> <li>• Solar energy</li> <li>• Biomass energy</li> <li>• Wind energy</li> </ul>
ET	<ul style="list-style-type: none"> <li>• Repair and maintenance of electrical, electronic and telecommunication devices</li> <li>• Microcontroller technology</li> <li>• Cabling system</li> <li>• Basic electronic technologies</li> </ul>	<ul style="list-style-type: none"> <li>• Designing of print circuit board</li> <li>• Installation of community radio antennas</li> </ul>	<ul style="list-style-type: none"> <li>• Electronic and telecommunication devices</li> <li>• Antennas for community radio</li> <li>• Power supplies</li> <li>• Micro-controllers</li> <li>• Teaching kits such as robots</li> </ul>	<ul style="list-style-type: none"> <li>• Thunder arrester</li> <li>• Temperature materials</li> <li>• Educational robot</li> </ul>
IT	<ul style="list-style-type: none"> <li>• Basic IT usage</li> <li>• Various software</li> <li>• Server management, repair and maintenance</li> <li>• Hardware repair and maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Network infrastructure installation and configurations/repair, maintenance</li> <li>• IT system development and maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Software development</li> </ul>	<ul style="list-style-type: none"> <li>• Software development (e.g. stock management system, online reporting system for local government institutions)</li> </ul>

#### (5) PU Activity Review (see Annex 8)

PU members reviewed each individual activities conducted in the first year, and analyzed the faced challenges, its causes and possible solutions. Some of the fundamental problems observed during the activity review were; difficulties for PU members to balance teaching workloads and PU workloads, lack of departmental support, inflexible and complex administrative and procurement procedures, and others. Different approaches to PU activities need to be explored in order to overcome such problems. At the same time, there is a need to understand the strengths and weaknesses of TCT, and examine what kind of activities could be carried out more effectively even under the limitations of public institutions.

#### (6) Third Country Training in Kenya (see Annex 9)

Third country training was conducted in Kenya. The mission team, consisting of PU members and a school management officer, visited two institutions, namely, Jomo Kenyatta University of Agriculture and Technology (JKUAT), and Technical University of Mombasa (TUM). In both institutions, the mission team visited a unit in charge of PU related activities and departments dealing with TCT technologies, and gained information with regards to their research promotion and support system, and some of the conducted research examples as well as commercialized products.

Among others, it was observed that both institutions put considerable efforts to strengthen their research support systems, recognizing that research is the foundation of all the other important activities, including research and development, consultancy services and others. Also, both institutions are trying to promote new research/innovation ideas within the university, for instance, through strengthening the network with external organizations, and supporting students' individual project competitions. Though the levels of research required in TCT and that of JKUAT and TUM are different, it was shared among the mission members that it is crucial to strengthen research based approach within TCT, i.e. examining assumptions, conducting experiments, and repeating the process of trial-and-error.

#### 5.2.2 Achievements of Output 2

##### (1) Development and Monitoring of Action Plan and Staff Performance Contract

As Action Plan and staff performance contract are closely interlinked, achievements of both components are discussed together.

The project intended to cover 3 steps of “Plan”, “Do” and “Check” out of 4 steps in PDCA cycle during the 1<sup>st</sup> year. It supported development and monitoring of Action Plan and staff performance contract. Compared to the last year, remarkable improvements can be found. The major achievements are as follows:

- ① Action Plan was developed based on the TCT Strategic Plan and all the activities in the Action Plan were covered by the staff's individual performance contract. The logical linkage from top to bottom was established.
- ② “Outputs”, “Activities” and “Tasks” were set within the logical framework in order to ultimately achieve “Outcomes”.
- ③ “Activities” were set by each unit and department aiming to enhance their ownership over the Action Plan. It became clearer that which unit and department



contribute to which outputs of the entire Action Plan.

- ④ A system to regularly monitor the progress of Action Plan was established by setting up a forum to review Action Plan quarterly among principal, vice principals and heads of units and departments. Moreover, monitoring system of individual performance contract was also introduced by submitting monthly reports to immediate bosses. As the individual performance contract is linked to TCT Action Plan, monitoring of individual activities can also be considered as indirect monitoring of Action Plan.
- ⑤ The Action Plan 2013-14 Quarter 1 Review retreat brought about the following achievements:
  - It allowed participants to understand what kind of tasks other units and departments are responsible for. It became easier to find out the causes of delaying activities. The retreat is expected to be an effective platform to enhance the coordination and communication among different units and departments.
  - It led to find out activities without responsible unit or department as well as activities which were not included in the Action Plan.
  - Presenting the achievements of their activities in front of the management and other units and departments gave them pressure to be evaluated by others. It is expected that the units and departments work more efficiently to avoid being criticized by others.
- ⑥ Through these series of activities mentioned above, the concept of PDCA cycle and its effectiveness were understood by principal, vice principals and heads of units and departments.
- ⑦ Japanese experts provided continuous OJT (on-the-job training) to a planning officer regarding development and monitoring of Action Plan. As a result, the planning officer now understands her roles in the process of developing Action Plan and is able to organize Action Plan Quarterly Review workshops without project's support.

## (2) Development of TCT Annual Event Calendar

The project supported a PR officer to develop TCT Annual Event Calendar. It aims to share schedule of school events and activities in advance among staff and students so as to facilitate early preparation for the events and activities. The project tried to build capacities of the PR officer so that he can develop the next year calendar without project support. The event information was collected from each units and departments and

entered into the calendar. After printing, the calendar was put up on the walls at TCT.

### (3) Third Country Training in Kenya

Training in the third country was conducted in Kenya to learn good practices in the area of HR management and career support from 2 universities, namely, 1) Jomo Kenyatta University of Agriculture and Technology and 2) Technical University of Mombasa. Besides the Production Unit members, Director of HR management and staff in charge of incubation centre participated in the training and learned the following points. The details are provided in Annex 9.

- Management of incubation centre
- Performance contract (planning, monitoring and evaluation)
- Staff Development  
(Training needs assessment, types of training, post-training evaluation)
- Retention strategy
- Induction for newly employed staff
- Attendance control of academic staff
- Workload control of academic staff

### (4) School Management Improvement Survey

A survey was conducted in Nov-Dec 2013 targeted at TCT staff to measure the effectiveness and level of improvement in school management. The survey questions include Action Plan based on PDCA cycle, individual work management, HR management and evaluation, procurement and asset management, budget management, communication among units and departments, career support, information sharing, department management etc. The staff were requested to choose 1 out of 4 options (strongly agree, agree, disagree, strongly disagree) for both as of November 2012 and November 2013 per question. Their perceptions as of November 2012 will be used as baseline data and the project measures the improvement level of school management every year throughout the project period.

Moreover, the perceptions of bosses and subordinates will be compared such as 1) Top management (principal and 2 vice principals) and all other staff, and 2) HODs and staff of respective department. In case the gap of the perceptions between the bosses and subordinates is large, the data will be used as tools to find out causes of problems.

Although the results of the survey this year is currently under analysis, the major

findings are as follows. As for administrative staff (N=20), their evaluation is higher in 2013 than in 2012 for 33 out of 37 questions. As for academic staff (N=36), their evaluation is higher in 2013 for 28 out of 48 questions and no change in both years for 11 questions. It shows a positive finding that especially administrative staff recognize the improvement in school management compared to the last year.

Regarding the questions related to Action Plan such as development of plan based on PDCA cycle, its implementation and monitoring, and reflections of lessons learned, both administrative and academic staff felt those have improved compared to the previous year. Especially the principal and vice principals recognized a greater improvement in Action Plan related items from 2.16 points in 2012 to 3.16 points in 2013 on an average when the scale is interpreted as “Strongly agree=4”, “Agree=3”, “Disagree=2”, and “Strongly disagree=1”.

Similarly, with regard to the questions related to HR management and performance evaluation, all staff including top management recognized the improvement compared to 2012. Moreover, the top management answered that the situations have improved in 19 out of 37 questions and are keeping status quo in 16 questions. Overall, it can be said that the TCT staff are recognizing the improvement in school management.

### 5.2.3 Achievements of Output 3

Output-3 aims to achieve “WDA and TCT share good practices useful for TVET sector”. The achievements of Output-3 on each indicator of the PDM are shown in the Table 16 below.

Table 16 : Achievements of Output 3 (as of December 2013)

PDM Indicators	Achievement
3-1. Regular meeting are held between WDA and TCT for sharing good practices	<ul style="list-style-type: none"> <li>Regular meeting are not held between WDA and TCT for sharing good practice.</li> <li>Meetings between WDA and TCT for preparing IAP follow-up workshop are held continuously several times.</li> </ul>
3-2. Dissemination of TCT's good practices to other TVET schools are included in WDA's action plan	<ul style="list-style-type: none"> <li>Due to the progress of realization of IPRC concept, GP dissemination is not recognized as a role of WDA. Therefore there is little possibility</li> </ul>

	that dissemination of TCT's good practices are included in WDA's action plan.
3-3. Number of events collaborated between WDA and TCT for the dissemination of TCT's good practices to other TVET schools: 5times during the project period	<ul style="list-style-type: none"> <li>• Number of collaborated events: 2 times</li> <li>✧ IAP Follow-up Workshop</li> <li>✧ Meeting for sharing TCT's experience on graduate tracer survey</li> </ul>

Supplementary explanation to the above achievements are described as follows.

#### (1) Establishment of a system to share TCT's GP with WDA

The project supported establishing "Good Practice Sharing Committee" in order to have periodical meetings for discussing GPs and lessons learned between WDA and TCT. It was agreed to establish a small size committee of which members are consisting of about six: Deputy Director of WDA as a chairperson, two from WDA, and three from TCT.

In the meantime, the project was expected to support WDA to include the events, such as GP sharing workshop, into their annual action plan, based on the assumption that holding those events are WDA's essential role to perform. From the beginning of the project, GP sharing activities have been carried out involving the relevant WDA staff.

At this time, however, the project is facing a challenge for establishing a system to share TCT's GP with WDA due to the situation change, which the project cannot cope with. The concept at the stage of project formulation assumed that the project collaborates with an expert attached in WDA and support sharing TCT's GPs inside WDA and disseminating them to other schools. However since the IPRC concept is progressing without clear demarcation between WDA and IPRC, the GP sharing system is now fluid and obscure. Also WDA does not recognize that GP sharing is their essential role. Based on the above situation, it is necessary to examine modification of the methodology for Output-3 in the project 2<sup>nd</sup> year and after.

#### (2) IAP Follow-up

One of the achievements in the project phase-1 is the effective implementation of IAP by TCT. In order to apply it to the other schools, JICA dispatched an expert to WDA during

the phase-1 for the dissemination mainly in the VTC level. In this line of activity, the project phase-1 hold an IAP Workshop on trial targeting the liaison officers of TVET institutions in May 2012.

In the phase-2, the project performed the follow-up activities aiming to examine the effectiveness of the above workshop and take necessary measures for further effective implementation. At first the staff members of WDA Partnership Department conducted a survey with questionnaire visiting the schools that participated in the last year IAP Workshop. As a result, the issues to be solved were extracted at every implementation stage of IAP. Based on this result, IAP Follow-up Workshop was held at a hotel in Kigali for two days from 1 to 2 August 2013. This workshop was co-organized by WDA and JICA. WDA bore the cost for the hotel rent, and JICA paid for the other cost. In this workshop, WDA staff made presentation of the above survey result, and led participants to discuss about possible measures against the issues to be solved. The workshop details are shown in Appendix 2.

One of the important issues was revision of the logbook. WDA revised it reflecting the workshop result in October 2013 and distributed to TVET institutions.

### (3) Sharing GP on Graduate Tracer Survey

The project phase-1 conducted TCT graduate tracer survey every year since TCT has produced its first batch of graduates. It was conducted four times during the period of the phase-1. It is only TCT which conducts the tracer survey in Rwanda. Because the employment rate and employers' information of the graduates are indispensable for TVET policy formulation, WDA recognizes that other schools also need to conduct tracer survey.

A meeting was held on 10 June 2013 among WDA, IPRC representative, and other donors, where TCT QA officer presented implementation method. WDA commented that though TCT's experience of continuous implementation of the tracer survey is valuable, in order to apply it to whole TVET in Rwanda, it is necessary to discuss the methodology (questionnaire, timing, target etc) of what kind of information should be collected in view of EDPRS indicators.

In the phase-1, the tracer survey was conducted by the project's initiative. But TCT took initiative for the tracer survey 2013 for the first time, led by QA officer. It is a great improvement that QA officer completed the survey in his section from the planning including a schedule and cost estimation, data collection, and compilation of the survey

report, with having advices from the project experts.

Also “Implementation Procedures of TCT Tracer Survey 2013” (See Annex 14) was made through the practical experience including remarkable points and lessons learned as for the reference to other TVET schools. This report was shared with WDA.

#### 5.2.4 Achievement of the Project Purpose

The project purpose is “TCT becomes a model institution that provides Government of Rwanda with effective approaches for improving TVET sector”. The indicators to measure the project purpose are as follows.

- TCT’s good practices are adopted in the plan of activities of WDA.
- Employment rate after one year of graduation: more than 80%
- Employer’s satisfaction rate of TCT graduates after one year of employment: more than 85%

None of the above indicators are achieved as of December 2013 at the of end the 1st year.

As mentioned in 5.2.3, it is necessary to discuss modification of the 1st indicator because GP dissemination might be not recognized as WDA’s essential role as the progress of IPRC concept goes on.

Regarding the 2nd indicator, the tracer survey of September 2013 shows the employment rate of 2012 graduates after one year of their graduation as 43.6%, which has a large gap with the target of 80%. It is needed to identify the factors of such gap and take counter measures.

Regarding the 3rd indicator, it is not measurable at this stage since the employer’s satisfaction survey was not conducted in the project 1st year. TCT is expected to conduct the employer’s satisfaction survey not every year but once in three years. It is scheduled in 2014 and 2017 in the project period.

## 6. Challenges, Applied Methods and Lessons in the Project Implementation

### 6.1 Challenges met in the PU support

TCT PU is currently facing a number of challenges which hamper the efforts to realize efficient operation of PU. The main challenges include:

- (1) General guidelines concerning income generation activities of TVET institutions
- (2) Budget implementation and procurement procedures within public schools
- (3) PU set-up and its operational structure
- (4) Materials and equipment not available in Rwanda
- (5) Means of mobility to strengthen PU

#### (1) General guidelines concerning income generation activities of TVET institutions

Rwandan government is encouraging TVET and higher learning institutions to strengthen their financial self-sufficiencies, and to conduct more income generation activities. However, there are currently no regulations or guidelines provided by the government, and each institution is conducting business activities in its own individual way.

In other institutions, many have adopted to conduct income-generation activities by setting up an external company, so as to overcome challenges of budget implementation and procurement procedures. In such cases, initial capital of the company is diverted from public budgets of the schools, and facilities as well as materials are provided to the companies free of charge. Furthermore there is no law to regulate the types of business activities a teaching institution is allowed to conduct. As a result, in many cases, school run companies conduct business which does not relate to their skills of expertise, and just use outsourced people to carry out the works. Such practices can pose a great concern over appropriateness of public fund and asset management, and fairness to private companies.

As was explained above, TCT is not an exception to set up an external company to run business and strengthen their income generating activities. TCT and the project have agreed to put the company operation outside of the project scope, yet it is important for the project to follow the company related activities, in terms of its set-up as well as business implementations, so as to find a feasible and efficient approach to TCT's PU operation.

## (2) Budget implementation and procurement procedures within public schools

All the public institutions, including TCT, are required to follow the regulations set by the Rwandan government for their budget implementations and procurement of goods and services. This, however, causes inflexibility and slow progress, posing a number of challenges to effective PU operation. Furthermore, there is a challenge to build a consistency between an annual school action plan and a budgetary plan for PU activities. While an annual school action plan is developed during the preceding year and difficult to change once it is approved by the government, PU activities require flexibility, and not all the necessary budget can be predicted in a detailed manner.

In order for TCT to operate its PU more effectively under such limitations, it needs to select its activities more strategically, for instance by prioritizing activities which can be preplanned. Furthermore, it is crucial to work closely with the administrative unit to build a strong PU support system within TCT, which enables faster budget implementation as well as more efficient procurement.

## (3) PU set-up and its operational structure

PU set-up and its operational structures are not sufficiently established. It is urgently needed to install minimum necessary operational structure, in terms of both office set-up and placing administrative staff. Furthermore, in order to work effectively in the newly agreed PU structure, which was put in place in December 2013, efforts have to be made to build clear procedures of PU related activities, for instance, how the workloads of academic staff are arranged, and how different departments can coordinate with one another.

## (4) Materials and equipment not available in Rwanda

In order to strengthen the self-sustainability of TCT PU, a focus should be given to activities that utilize materials and equipment TCT can procure by themselves. However, some of the materials and equipment necessary for PU activities, such as electronic components for ET related activities and quality machineries needed for AE related activities, are difficult to find in Rwanda. Furthermore, due to budgetary constraints, international procurement, including international bidding, is not a realistic option. In order to challenge such constraints, possibilities need to be examined to find a feasible procurement options as well as activities that can be carried out with materials and equipment available in Rwanda.



## (5) Means of mobility to strengthen PU

Currently, TCT does not have a vehicle which can be used exclusively for PU related activities. Requesting for TCT owned vehicle requires pre-approval process as well as arrangements with other school related activities, making it difficult for PU to move flexibly to respond to customers' requests. On top of the concerns regarding flexible mobility, TCT also has a disadvantage due to its location. Recognizing such limitations, means of mobility needs to be secured for PU activities.

## 6.2 Action Plan Preparation Time and the Rigidity of the Plan

TCT was requested by WDA to submit Action Plan 2014-15 with a revised template in the middle of November 2013. Since the preparation period was limited, the Action Plan was prepared only by the principal, vice principal and planning officer in a few days and submitted to WDA. From this year onward, TCT will have to submit Action Plan in November.

Since the financial year starts in July, if TCT has to submit Action Plan for the following year in November, TCT will have to start preparing for it from October, which is just the 4th month after the implementation of Action Plan of the year. This situation makes it difficult to reflect the lessons learned from the previous year in the following Action Plan. The time to prepare Action Plan and to submit to WDA is illustrated in Figure 2.

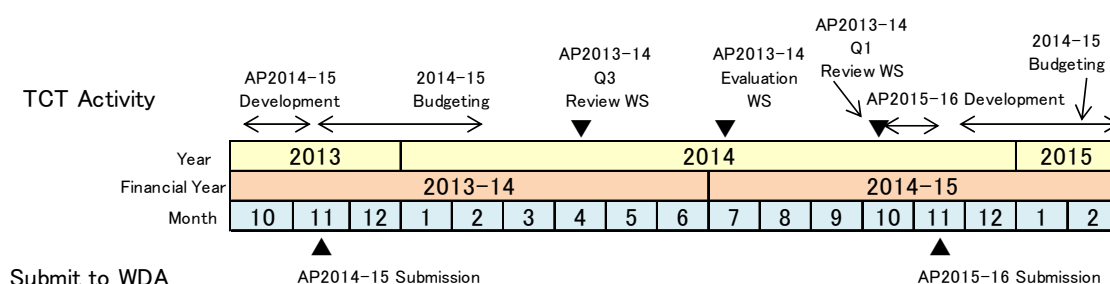


Figure 2 : Action Plan Preparation and Submission Time

Another concern is that the next year budget will be decided based on the Action Plan which was prepared without inputs and involvement of units and departments. The project will make efforts to support participatory planning for Action Plan 2015-16.

Besides the challenge of Action Plan preparation time, TCT faces a challenge of rigidity of the plan. Since the once-developed Action Plan cannot be modified in the middle of the year, it impedes adding new activities corresponding to the situational changes.

Even if they want to have a small but important event, there is no budget available. The project will flexibly deal with such factors affecting TCT beyond its control.

### 6.3 Situation change by the progress of IPRC concept

Rwanda is now realizing IPRC Concept in a rapid speed. However the concrete role of IPRC is in fact not yet explained after issuing the concept in 2008.

In the North Province where TCT locates, a new VTC facility will be completed in June 2014 in Musanze, which is the largest city in the province. It is said that the new facility will function as a headquarters of IPRC North after completion. In case that the TCT top management members move to the new headquarters in Musanze, the project has to consider how to support the school management either TCT only or IPRC as a whole.

According to the progress of IPRC concept, the project should consider modification of GP sharing methodology.

## 7. Priority Activities for the 2nd Year

### 7.1 Priorities of Output 1

#### (1) Strengthening of PU management

Continuing from the first year, the project will focus on strengthening the management function of PU. In particular, the emphasis will be given to the issues related to financial management and income distribution of PU. Furthermore, in order to realize more organized and structured PU management, the details will be examined in terms of procedures regarding selection, monitoring and evaluation of an individual project. The results will be reflected on the guideline which is currently under preparation.

#### (2) Development of PU strategic plan

PU strategic plan will be developed. Understanding the comparative advantage and weaknesses of TCT, the strategic plan will make it clear which kind of activities should be given more priority, serving as a guideline in the PU activity selection process. The results of the needs survey as well as the PU activity reviews conducted in the first year will be used as reference to develop a PU strategic plan. Once the strategic plan is developed, the assistance will be given to effectively utilize the plan in the project selection and evaluation process. Annex 16 shows some of the ideas for activity types as well as detailed activity ideas that are tentatively in discussion to be given a focus next year.

#### (3) Networking with external organizations

As one of the approaches to realize more efficient and effective PU operation, the possibilities of joint ventures with external organizations will be examined. More concretely, possibilities for collaboration will be examined in terms of joint research, product development, and collaborative consultancy projects. Utilizing the outputs of the first year, e.g. the needs survey and the production unit launching ceremony, such possibilities will be examined based on the analysis of customer needs and provision of solutions to the common challenges faced in Rwanda. Further the possibilities for joint venture business with TCT graduates will be examined as part of student carrier support.

#### (4) Strengthening of marketing functions

Marketing activities will be strengthened to improve the PU function in terms of customer acquisition and needs identification. The project will be working closely with a

marketing officer, who is currently in the screening process, and conduct various activities, such as regular company visits, information gathering, and development of marketing tools.

(5) Feedback of PU experience to academic departments

Activities will be conducted to build a system within TCT to effectively share the knowledge, skills and information acquired from PU activities to the academic departments. In the second year, it will be aiming to visualize PU activities within TCT, for instance, by organizing an event within TCT to introduce and report conducted PU activities to academic staff and students. In order to build an information sharing system which is more efficient and systematic, efforts will be given to utilize already existing functions within TCT, such as departmental meetings.

## 7.2 Priorities of Output 2

(1) Action Plan Development based on PDCA cycle

The project will continue to support development and monitoring of Action Plan in the 2nd project year. The focus will be extracting challenges from the previous Action Plan and reflecting the lessons learned to the following plan as a part of PDCA cycle, which was not covered in the 1st project year. The project aims to involve all staff in preparation of activities for Action Plan 2015-16. As for monitoring of the plan, the project will continue to support quarterly reviews.

(2) Development of TCT Annual Calendar (Event Calendar・Administrative Calendar)

Besides the support to improve TCT Annual Event Calendar prepared in the 1st year, the project will support to develop an internal Annual Administrative Calendar for the 2nd project year. TCT staff are engaged in not only the preparation of events but also various administrative work such as budgeting, procurement plan, preparation of performance contract, Action Plan preparation, quarterly reviews etc. However, the deadlines or implementation period of such administrative work are frequently not determined or shared among the staff in advance. If the staff are aware when the particular work is scheduled in a year, they can be more conscious about when to start preparing for it and how to adjust other work. The Annual Administrative Calendar is expected to be a tool for all staff to have common information by visualizing the complex schedule given in the Action Plan.

### (3) Human Resource Management

The project will continue to support human resource management in the 2<sup>nd</sup> year. It mainly aims at performance contract to be well monitored using monthly report and fairly evaluated. Besides the support to improve monitoring system, the project will support workshops to sensitize all staff about performance contract so as to gain understanding and cooperation from them.

The project will seek a possibility of utilizing the results of performance contract for staff training needs assessment. This was practiced in the university visited during the training in Kenya. The Director of HR management wishes to incorporate the good practice into TCT. The project would also like to seek for other effective tools for training needs assessment together with the Director of HR management.

### (4) Procurement and Asset Management

Procurement and asset management are one of the urgent issues to be tackled at TCT. The project will aim to establish an appropriate system throughout the project period that necessary consumables and equipment are purchased on time, purchased items are properly registered and managed, and procedures to repair or discard the items are well set. Due to the introduction of new accounting system, TCT has to manage depreciation of assets as well as insurance against the assets. In spite of new requests from the government, it is hard to say that asset management is properly done at TCT in the absence of a logistics officer. The project will support a logistics officer, who will be newly employed early next year, to establish an effective system from procurement to discard of goods.

## 7.3 Priorities of Output 3

### (1) Performing GPs in TCT and store GP examples

The project support TCT to generalize the GPs so that it can be applied to other TVET institutions, and to store them inside TCT.

The employers' satisfaction survey will be conducted in the first half of the 2<sup>nd</sup> year. Besides the above mentioned employers' satisfaction survey, department management and reflection of the needs from industry sector are nominated for GP to be taken in the 2<sup>nd</sup> year. It should be examined among TCT members of which GP is to be taken.

(2) GP sharing on a web-site

The project proposes setting up the web-site “Rwanda TVET Forum” (tentative name) as a platform for information exchange among the TVET institutions in Rwanda. The site shall have a place for GP sharing. TCT and other institutions will upload their GPs there. Also the site will be used for sharing other information such as event notice, introduction of active graduates, and so on.

(3) Support for national TVET meeting

The project supports holding a national TVET meeting, which is suggested to be co-organized by WDA and JICA. Every TVET institutions, including TCT, is expected to make a presentation of GP in the meeting so that it can be shared among the schools as well as WDA. The project collaborates with the JICA expert in WDA for organization of such meeting.

(4) Adjustment according to the IPRC Concept

The project watches the progress of IPRC Concept. Sharing GP and its dissemination depend on the functions to be set for IPRC North. According to the progress of IPRC, the project adjusts the activities for Output-3.

# List of Annexes

- 1 : Minutes of the 1st Joint Coordinating Committee
  - 2 : Production Unit Guideline Structure
- 3 : Experiences of PU Activities in Other Institutions
  - 4 : Production Unit Workshop Documents
  - 5 : Staff Incentive Policy
- 6 : List of Staff Participated in PU Activities in 2013/14
  - 7 : Deliverables of Production Unit Activities
  - 8 : Production Unit Activity Review
  - 9 : Third Country Training Reports
  - 10 : Production Unit Marketing Documents
- 11 : Production Unit Launching Ceremony Report
  - 12 : TCT Action Plan 2013-14
  - 13 : TCT Annual Event Calendar
- 14 : Implementation Procedures of TCT Tracer Survey 2013
  - 15 : TCT Academic Staff Workload Calculation Guideline
- 16 : List of Production Unit Activity Ideas for the 2<sup>nd</sup> Year

Annex 1 :

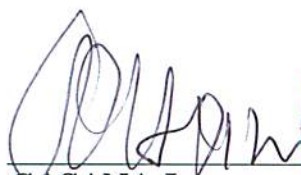
Minutes of the 1st Joint Coordinating Committee



MINUTES OF MEETING OF  
THE 1<sup>ST</sup> JOINT COORDINATING COMMITTEE  
FOR  
THE PROJECT FOR STRENGTHENING THE CAPACITY OF  
TUMBA COLLEGE OF TECHNOLOGY - PHASE-2

The 1<sup>st</sup> Joint Coordinating Committee (JCC) for the Project for Strengthening the Capacity of Tumba College of Technology Phase-2 (hereinafter referred to as “the Project”) was held on 2 April 2013 at the Ministry of Education (MINEDUC), Kigali, Rwanda. The project was officially launched with the approval of Inception Report. The committee agreed on the matters referred to in the document attached hereto.

Kigali, April 2, 2013



**GASANA Jerome**

Director General

Workforce Development Authority  
(WDA)



**KOBAYASHI Hiroyuki**

Chief Representative

Rwanda Office



Japan International Cooperation  
Agency (JICA)



**GATABAZI Pascal**

Principal

Tumba College of Technology (TCT)/  
IPRC-North



**NISHIYAMA Ryuichi**

Chief Advisor

The Project for Strengthening the  
Capacity of Tumba College of  
Technology Phase-2



#### AGENDA 1:

##### Opening Remarks by Hon. Nsengiyumva Albert, Minister of State in charge of TVET, MINEDUC

Hon. Nsengiyumva Albert, Minister of State in charge of TVET, MINEDUC, welcomed all the participants to the 1<sup>st</sup> JCC meeting and expressed his pleasure to witness the launching of the project phase 2. He stated that the project is greatly relevant to the needs of Rwanda, which is skills and capacity development of its own people. He suggested that the project activities should match with the government policies and national priorities such as EDPRS II and national leadership retreat recommendations for economic transformation. Also he pointed out that private companies are crucial partners for TVET sector.

Lastly he stressed that the Government of Rwanda is highly committed to making the project successful.

#### AGENDA 2:

##### Remarks by Mr. Hiroyuki Kobayashi, Chief Representative, JICA Rwanda

Mr. Hiroyuki Kobayashi, Chief Representative, JICA Rwanda Office, presented his remarks including the following points:

- The key successes of the project phase 1 are: 1) Ownership, 2) Leadership and 3) Commitment from Rwandan side.
- The project phase 2 is based on the success of the phase 1.
- The phase 1 targeted development of TCT but the phase 2 will target the whole country and try to contribute to the national system in the TVET sector.
- The people who work on the ground are the seeds for innovation. He wished that TCT becomes a nursery to produce such seeds.

He ended his remarks by stating that JICA would be grateful for working with the committed Government of Rwanda.

#### AGENDA 3:

##### Presentation on "Project Outline" by Mr. Ryuichi Nishiyama, Chief Advisor of the Project

Mr. Ryuichi Nishiyama, Chief Advisor of the Project, explained the outline of the project with the slides attached as Annex-1.

#### AGENDA 4:

##### Presentation on "Plan of Operation" by Mr. Gatabazi Pascal, Principal, TCT/IPRC North

Mr. Gatabazi Pascal, Principal, TCT (IPRC North) shared the plan of operation of the Project with the slides attached as Annex-2.



## AGENDA 5:

### Presentation on “Japanese Experience in Economic Development, HRD and TVET” by Mr. Shinichiro Nakahara, Senior Advisor of TVET, JICA HQ

Mr. Shinichiro Nakahara, Senior Advisor of TVET, JICA HQ, made a presentation on “Japanese Experience in Economic Development, HRD and TVET” with the slides attached as Annex-3.

## AGENDA 6:

### Discussion and Approval of the Inception Report

The major concerns, comments and recommendations discussed in this session are as follows:

#### 1) Relevancy

The discussion led to the concerns with respect to connecting the project objectives/ activities to national priorities especially as captured in EDPRS II and recommendations from the national leadership retreat. TCT and the Project team acknowledged the importance of its relevance and agreed to take it into consideration.

#### 2) TVET in Japan

Hon. Minister of State asked which organization is responsible for finding out market needs and designing the training courses in Japan. Mr. Nakahara answered that each TVET institution is responsible for it.

Dr. Gatare, Director General, National Science and Technology Commission, inquired the reason why only 40% of the graduates of technical high school in Japan enter the labour market. Mr. Nakahara responded that it is because of the change in the labour market needs. During the rapid economic growth, there was a high demand of workforce in the market. However, the current market requires more educated workforce. Therefore, the graduates prefer going for higher education.

#### 3) Production Unit

Dr. Gatare appreciated very much the idea of establishing the production unit, which is in line with his thinking of establishing ICRD (Innovation Corner, Research & Development). He suggested that one of our key focuses should be the linkage between TVET/higher learning institutions and communities/industries. Production Unit can play an important role in the dynamic curriculum development. Encouragement of production unit should not remain at WDA level but should be transferred to policy level.

#### 4) Accessibility to the Market

Mr. Didier, Director of Partnership, WDA asked how to sell the products or service, considering the location and accessibility to the market in Tumba. In response to his query, Mr. Nishiyama stated that TCT needs a facility in Kigali for its production unit activity, but the project targets a range of community outreach activities for the local community around Tumba by utilizing the applied

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technology such as improved cooking stoves, biogas, peat, briquettes, solar, ICT, etc. which will directly contribute to the community development.

#### 5) In-House Company in Public Institutions

Mr. Didier, Director of Partnership, WDA had a concern that the position of production unit within public institution is not clear. He suggested that it is better to establish an autonomous company.

Mr. Kamanzi, Director of Production Unit, TCT responded that TCT had already registered its company but it was not in operation yet.

Mr. Zimurinda Francois, Vice dean, Faculty of Engineering, KIST stressed that only fully fledged company operating as private can run business and compete in the private sector since long bureaucracy and decision making process in the public sector hamper the competitiveness and profit making.

Mr. Gatabazi, Principal of TCT, asked for clear guidance from the higher authority for the smooth operation of in-house company in the public institution.

#### 6) Incubation Centre

Mr. Ntare Alex, Director of ICT Chamber, Private Sector Federation, and Dr. Evode Mukama, Head of ICT & ODEL, Rwanda Education Board, expressed concerns with respect to the link between the Production Unit and the Incubation Center.

Mr. Gatabazi shared his interest to connect the TCT incubation centre to the TCT production unit. Mr. Nishiyama agreed to work on how best it can be done.

#### 7) Good Practice Dissemination

Mr. Mugiraneza J. Bosco, Principal, IPRC-West, asked why good practices will be shared only between TCT and WDA. It should be disseminated to other TVET institutions and private sector.

Mr. Nishiyama stated that the support for dissemination of good practices to other TVET institutions was originally included in the project design. Also the project will consider sharing the good practices to the private sector.

#### 8) Involvement of Private Companies

Mr. Ntare promised that he would organize a meeting between private companies and the project team so that useful inputs would be incorporated in the project.

#### AGENDA 7:

##### Closing Remarks by Mr. Gasana Jerome, Director General, WDA

Mr. Gasana Jerome, Director General, WDA, declared that the committee approved and accepted Inception Report of the Project (Annex 4) with a reminder that the project should align with EDPRS II (The second phase of the Economic Development and Poverty Reduction Strategy). He presented the closing remarks

with appreciation for the fruitful meeting.

List of Annexes:

Annex 1: Project Outline

Annex 2: Plan of Operation



Annex 3: Japanese Experience in Economic Development, HRD and TVET

Annex 4: Inception Report of the Project

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## Project for Strengthening the Capacity of Tumba College of Technology Phase-2 (JICA Technical Cooperation)

### Project Outline

02 April 2013

Ryuichi Nishiyama  
Chief Advisor / TVET Policy 1

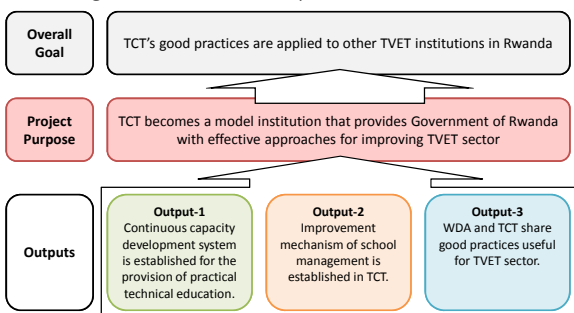



## CONTENTS

1. Project Outline
2. Basic Principles
3. Project Activities on Each Output
4. Implementation System
5. Project Experts
6. Expert Dispatch Schedule
7. Plan of Operation

## 1. Project Outline

Project Period: 5 years (March 2013 – February 2018)  
Total Budget: JPY612,000,000.– (equivalent to USD6.44mil.)



## 2. Basic Principles

<Basic Principle 1>

- Effective utilization of outputs and experience of the project phase-1

<Basic Principle 2>

- Putting priorities every year on each output

<Basic Principle 3>

- Harmonization among the three outputs

## 3. Project Activities on Each Output

### 3-1 Activities on Output-1

#### (1) List of Activities on Output-1

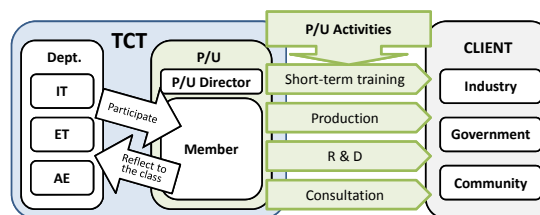
**Output-1: Continuous capacity development system is established for the provision of practical technical education**

- 1.1 Formulate action plan of the production unit
- 1.2 Set up "Production Unit Management Guideline"
- 1.3 Conduct a needs survey
- 1.4 Conduct production unit activities
- 1.5 Conduct technical training according to the production unit activity
- 1.6 Review and evaluate production unit activities

### (2) Implementation Concept of Output-1

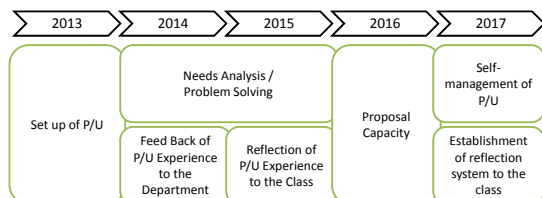
<Approach>

Continuous capacity development system through the Production Unit (P/U)



## (3) Priorities of Each Year on Output-1

Output-1: Continuous Capacity Development System is established for the provision of practical technical education.



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## 2-1 Activities on Output-2

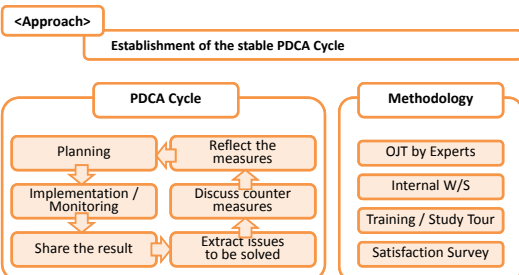
## (1) List of Activities on Output-2

Output-2: Improvement mechanism of school management is established in TCT.

- 2-1 Formulate school management plan
- 2-2 Design a monitoring system that fits to the actual situation of TCT
- 2-3 Conduct monitoring
- 2-4 Identify issues to be tackled
- 2-5 Share the issues to be tackled among TCT staff
- 2-6 Discuss the causes of issues and measures for improvement among TCT staff
- 2-7 Implement the measures for improvement
- 2-8 Carry out the activities of 2-3 to 2-7 above as a cycle
- 2-9 Conduct an internal satisfaction survey for TCT's school management

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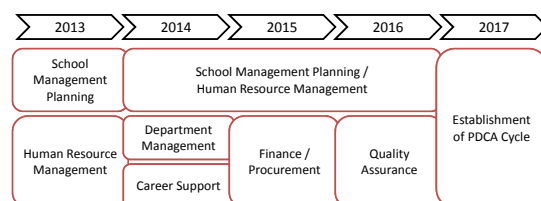
## (2) Implementation Concept of Output-2



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## (3) Priorities of Each Year on Output-2

Output-2: Improvement mechanism of school management is established in TCT.



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## 3-1 Activities on Output-3

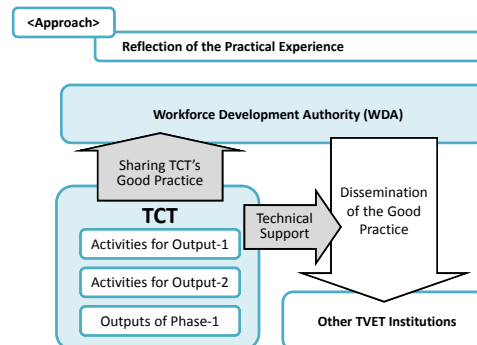
## (1) List of Activities on Output-3

Output-3: WDA and TCT share good practices useful for TVET sector.

- 3-1 WDA and TCT identify issues in TVET sector for the quality improvement
- 3-2 TCT reviews TCT's activity regularly
- 3-3 WDA and TCT summarize TCT's good practices and lessons learned
- 3-4 TCT supports WDA to implement the dissemination of good practice

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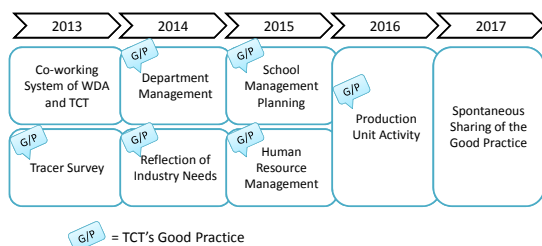
## (2) Implementation Concept of Output-3



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### (3) Priorities of Each Year on Output-3

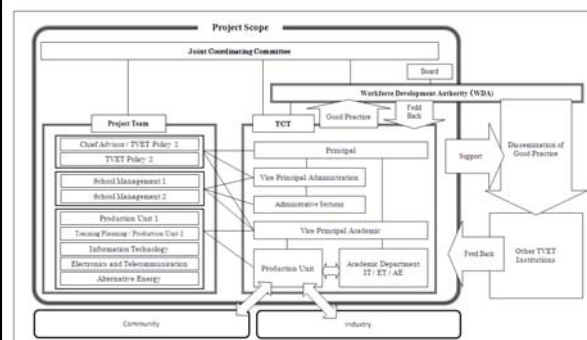
Output-3: WDA and TCT share good practices useful for TVET sector.



 = TCT's Good Practice

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## 4. Implementation System



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## 5. Project Experts

Expert Title	Name
Chief Advisor / TVET Policy 1	Ryuichi Nishiyama
Deputy Chief Advisor / TVET Policy 2	Mariko Ikawa
Production Unit 1	Tatsumi Aragaki
Production Unit 2 / Training Planning	Nana Kondo
Information Technology	Naoyuki Sato
Electronics and Telecommunication	Junichiro Tomiyasu
Alternative Energy	Ravi Chhetri
School Management 1	Yumiko Ono
School Management 2 / Project Coordinator	Erika Asada

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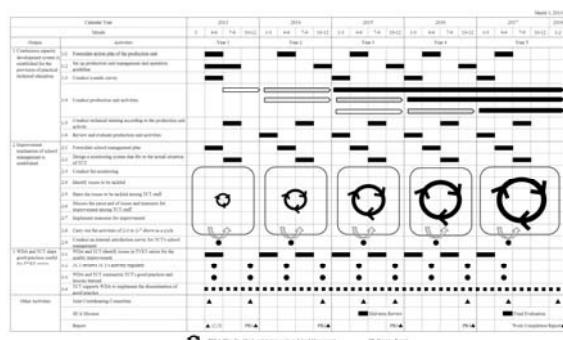
## 6. Expert Dispatch Schedule

### Expert Dispatch Schedule in the 1<sup>st</sup> Project Year

Expert Dispatch Schedule in the 1 <sup>st</sup> Project year																
Title	Name	Y	2013												M	
		M	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Chief Advisor / TYET Policy	Nishiyama				0.6				0.6				0.6		3	
Deputy Chief Advisor / TYET Policy 2	Sawa			0.6					0.6				0.6		4	
Production Unit 1	Aragaki							0.6					0.6		4	
Training Platform / Production Unit 2	Kondo				0.6							0.6			6	
Information Technology	Sato															
Electronics and Telecommunication	Tomiyasu					0.6								0.6		
Alternative Energy	Chiburi					0.6									2	
School Management 1	Ota				0.6								0.6		2	
School Management 2 / Project Coordinator	Akuda			0.6								0.6				
Total(M)															31	

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## 7. Plan of Operation



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# THANK YOU!



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Project for Strengthening the Capacity of  
Tumba College of Technology Phase-2

**Plan of Operation**

The 1<sup>st</sup> JCC Meeting  
2 April 2013

Gatabazi Pascal  
Principal, TCT (IPRC North)

JICA

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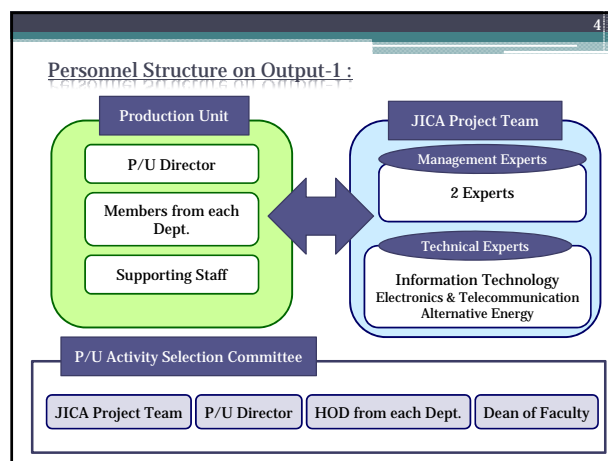
**CONTENTS**

1. Output 1
  - Personnel Structure
  - Activities
2. Output 2
  - Personnel Structure
  - PDCA Cycle
  - 1<sup>st</sup> year (2013) Activities
2. Output 3
  - Personnel Structure
  - Good Practice Dissemination Process
  - Activities

3

**Output-1**

**Continuous capacity development system  
is established for the provision of  
practical technical education**



5

**Activities on Output-1 :**

1. **Formulate P/U Action Plan** (by April 2013)
2. **Develop P/U Operational Guidelines**  
(through 3 workshops until July 2013)
  - Collect information from other institutions

**Contents (tentative)**

P/U objectives	Activity selection criteria
Personnel Structure	Reflection of experience to Dept.
P/U Management	Equipment management
Workload regulation	Procurement system
Management of income	Support from TCT admin.
3. **Conduct Needs Survey**
  - Inventory of TCT services and technology
  - Needs from Industries, Govt. NGOs and Communities

6

**1<sup>st</sup> year (2013) Activities on Output-1 :**

4. **P/U launching ceremony in Kigali** (In July 2013)
5. **Conduct P/U Activities**
  - Identify potential clients (stakeholders)
  - Make proposals
  - Select Activities by

**Potential Activities**

<b>IT Dept:</b> System development, PC refurbishing etc.
<b>ET Dept:</b> Telecom industry (fiber optic, radio etc.)
<b>AE Dept:</b> Intervention to energy sector (briquettes, biogas, ICS)

#### Activities on Output-1 :

##### 6. Technical Training to P/U members

- Training by experts according to the P/U activities
- Study Visit to institutions outside Rwanda  
(Production development, marketing, P/U management)

##### Institutions to be visited (tentative)

- Jomo Kenyatta Univ. of Agriculture & Technology (Kenya)
- University of Dar Es Salaam, BICO (Tanzania)
- Gadjah Mada University (Indonesia)
- Kobe Institute of Computing (Japan)

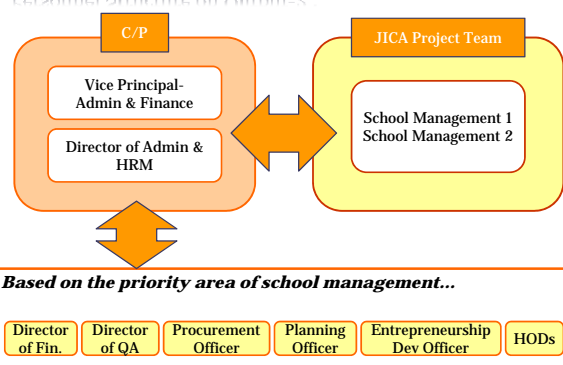
##### 7. Feedback of P/U experience to the Dept. and reflect them to the regular class

- Internal seminar by P/U members

#### Output-2

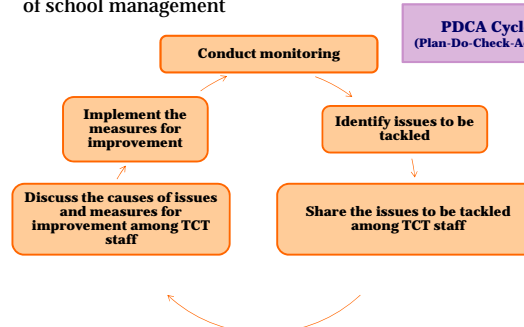
**Improvement mechanism of school management is established in TCT**

#### Personnel Structure on Output-2 :



#### Activities on Output-2:

- Carry out the following activities as a cycle on each area of school management



#### 1<sup>st</sup> year (2013) Activities on Output-2 :

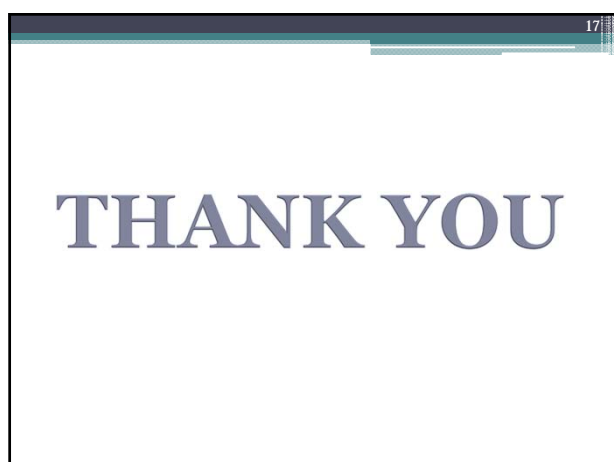
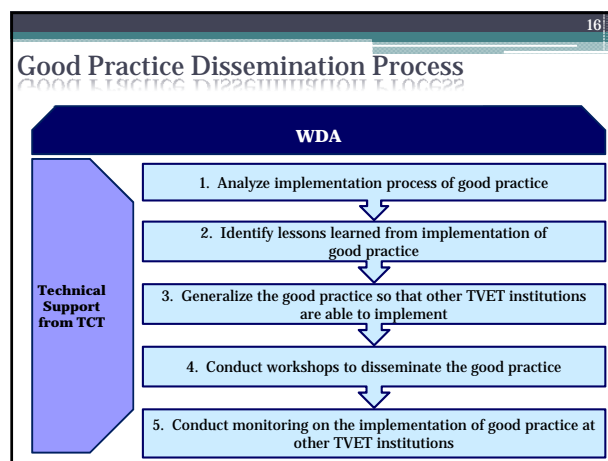
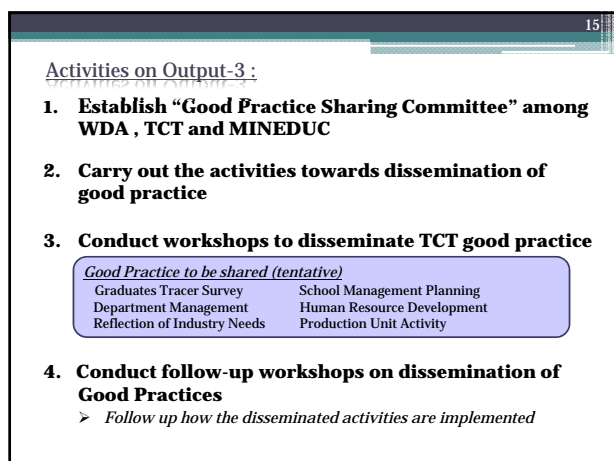
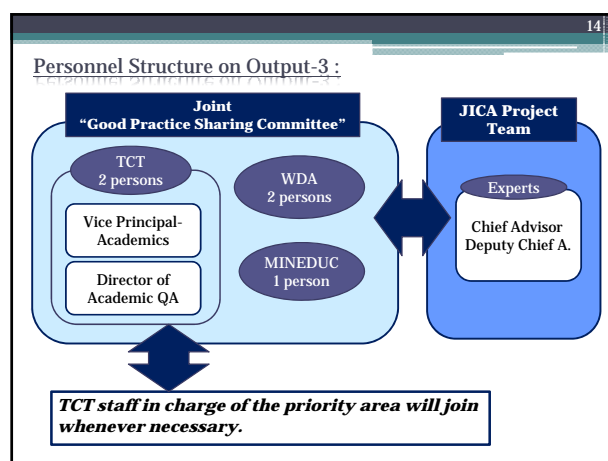
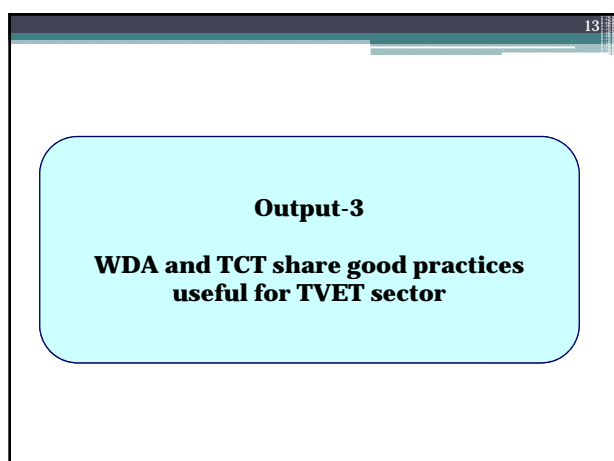
1<sup>st</sup> year priority: 1. Activities for TCT Annual Plan

1. **Conduct a workshop to create and share organizational visions among TCT staff**
2. **OJT training on the following activities by JICA experts**
  - Evaluate the last year annual plan
  - Identify the issues and causes
  - Prepare the plan for 2013
  - Set up a monitoring system and conduct monitoring
3. **Conduct workshops to**
  - share monitoring results
  - identify issues and causes
  - find improvement measures

#### 1<sup>st</sup> year (2013) Activities on Output-2 :

1<sup>st</sup> year priority: 2. Activities for Human Resource Management

4. **OJT training on the following activities by JICA experts**
  - Develop a management plan for performance contract
  - Prepare performance contract for TCT staff
  - Set up a monitoring system and conduct monitoring
- 1<sup>st</sup> year Common Activities:
5. **Study Visit to institutions outside Rwanda**
  - Institutions to be visited (tentative)
    - CPPT (Senegal)
    - Nakawa Vocational Training Institute (Uganda)
6. **Conduct Internal Satisfaction Survey for TCT school management**
  - The 1<sup>st</sup> year survey results will be used as baseline data.
  - For 6 priority areas of school management



1<sup>st</sup> Joint Coordination Committee on  
The Project for Strengthening the Capacity of  
Tumba College of Technology Phase II

**Japanese Experience in Economic  
Development, HRD and TVET**

Shinichiro NAKAHARA  
Senior Advisor of TVET  
Japan International Cooperation Agency (JICA)  
Kigali, Rwanda  
April 2, 2013  
Japan International Cooperation Agency

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1. Japanese Experience in Economic Development
2. Japanese Experience in HRD System
3. Japanese Experience in TVET System
4. Summary

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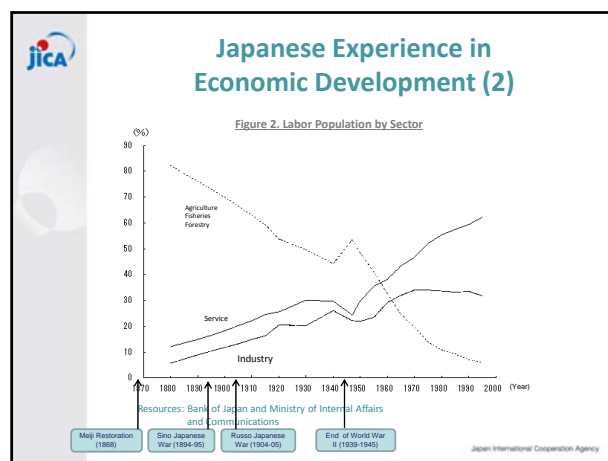
**Japanese Experience in Economic Development (1)**

**Historical Background**

- After turmoil of **warring states period** (15<sup>th</sup>-16<sup>th</sup> century) → Stable **Edo period** with national isolation policy (17<sup>th</sup>-18<sup>th</sup> century); No major war over 250 years
- “**Kaikoku** (opening of the country)” pressure came from the Western countries, like USA, UK, Russia, Netherland, through Industrial Revolution (mid 18<sup>th</sup> century) → **end of warrior rule**
- **The Meiji Restoration (1868)** = restoration of the Imperial power → parliamentary democracy (1890); Big political shift
- “**New Industrial Policy**” to catch up the Western countries = **Bureaucracy-led Industrialization**

Figure 1. Japanese Chronology (17<sup>th</sup> century~present)

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**Japanese Experience in Economic Development (3)**

**“New Industrial Policy” = National Modernization**

1. **Textile industry** (spinning, silk and fabric); More than 60% of total export and 50% of total manufacturing output in 1890s
2. **Military industry**; Governmental mines and factories were established in order to develop the industry + shipbuilding for battleship

- **Such industries and Sino-Japanese War (1894-95) and Russo-Japanese War (1904-05)** became a powerful engine to grow national economy

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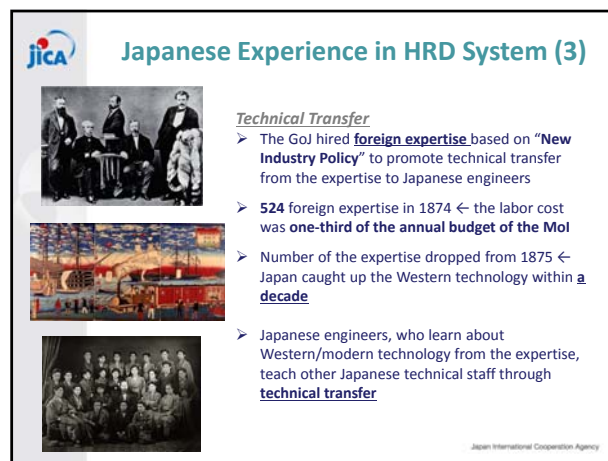
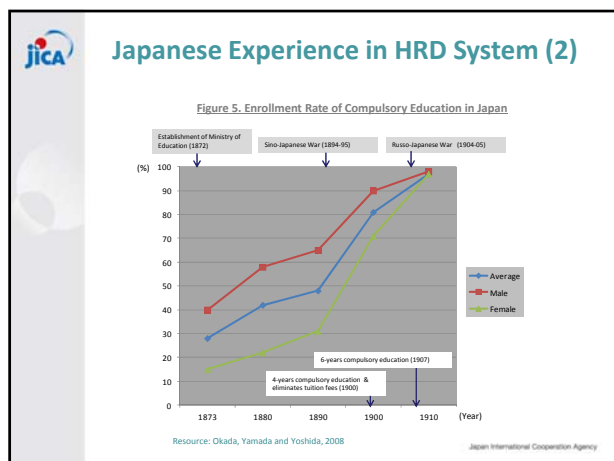
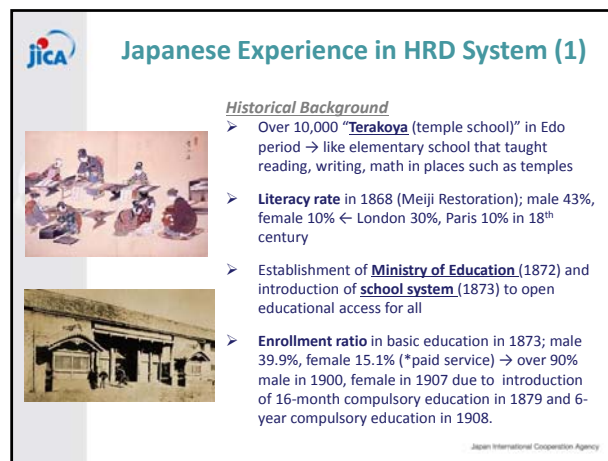
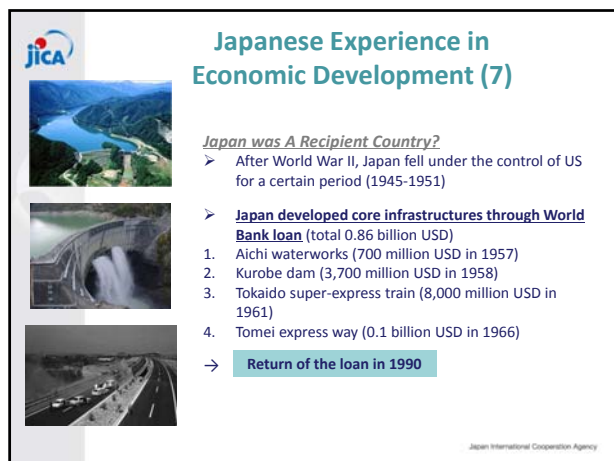
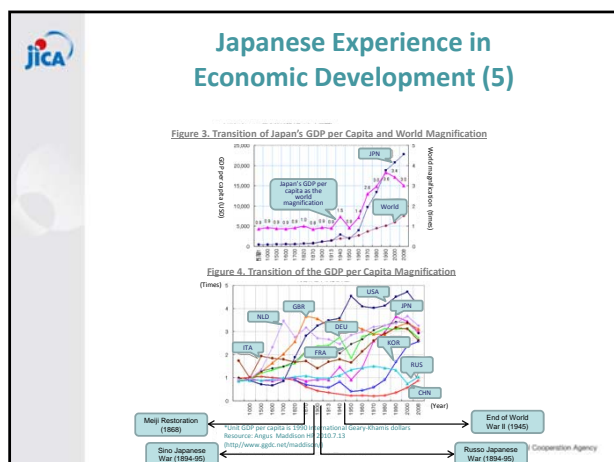
**Japanese Experience in Economic Development (4)**

**After World War II**

- Japan lost World War II in 1945
- **Huge damage**; HR (185 million), national wealth (25% damage rate of total stock) and manufacturing productions (one-tenth of pre-war level) from the war
- **Korean War (1950-53)** was a main trigger to accelerate the economic growth; **Huge materials order from US military** → increase export drastically
- As a result, 10 years after World War II, Japanese economy ended a confusing period, and began a **catch-up process**.

= **Rapid Economic Growth (mid 1950s-1970s)**

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### Japanese Experience in HRD System (4)

**After World War II**

- Increase in **enrollment rate**
  - 51.5% in upper secondary education (high school) and 10.1% in higher education in 1955
  - 87.2% in upper secondary education (high school) and 29.8% in higher education in 1972
  - 96.9% in upper secondary education (high school) and 49.1% in higher education in 1999
- **OJT in the firms** = investment in HR
  - Little job hopping due to **lifetime employment**, **promotion and wages by seniority** (length of service) and **enterprise union** (company-based union in collaboration with managers)

= **Japanese Style Employment System**




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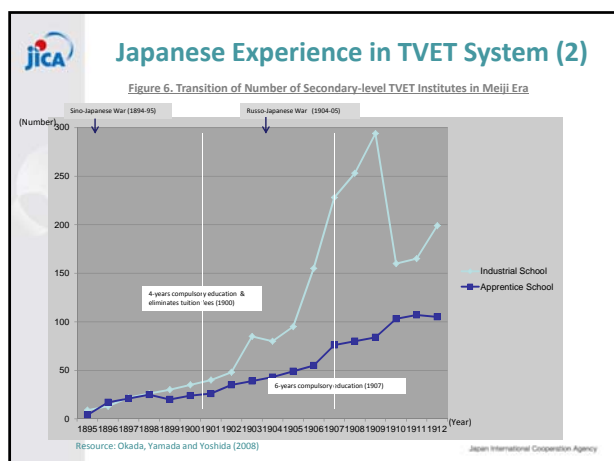
### Japanese Experience in TVET System (1)

**Transition of TVET System**

- 1877; Establishment of **University of Engineer** = development of professional engineers
- 1890s~; **Informal OJT within the firms** = apprenticeship
- 1900s~; Expansion of **public industrial schools** (9 schools in 1895 → 294 schools in 1909) and **apprentice schools** (4 schools in 1884 → 104 schools in 1910) (\*craftsman level; lower secondary education)
- 1920s~; **Formal in-house training by the firms** = establishment of their own institute
- 1930s~; Expansion of **public technical schools** (\*artisan level; lower and upper secondary education)



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### Japanese Experience in TVET System (3)

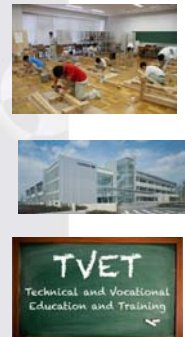
**Rapid Economic Growth (mid 1950s-1970s)**

- 1950s~; Expansion of **technical high schools** (\*craftsman level) and **junior colleges** (\*diploma level)
- 1960s~; Expansion of various **public vocational training centers** (\*artisan and diploma levels)
- 1970s~; Expansion of **private vocational schools** (\*craftsman level)

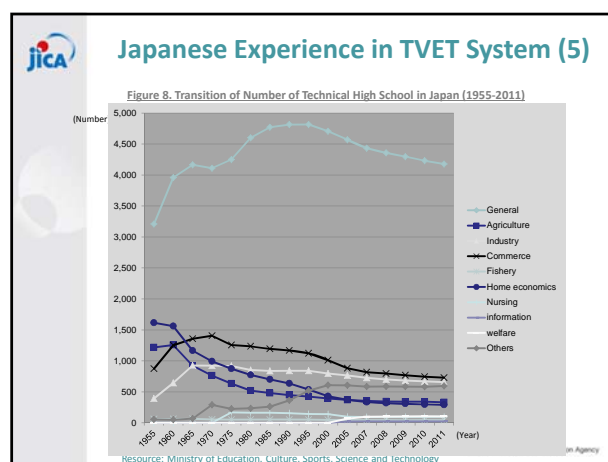
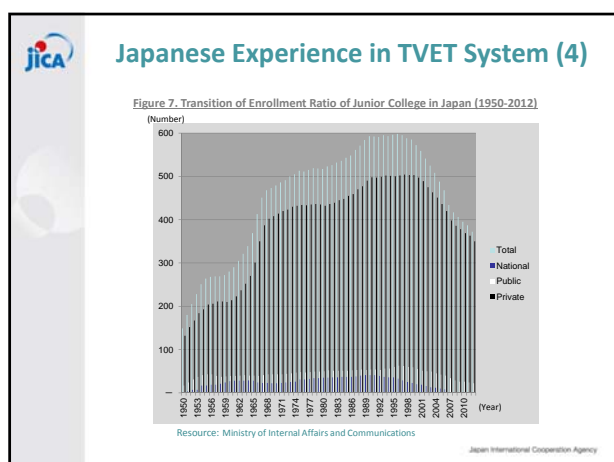
= **Expansion of TVET Institutes**

**Reach Economic Maturity (mid 1980s~)**

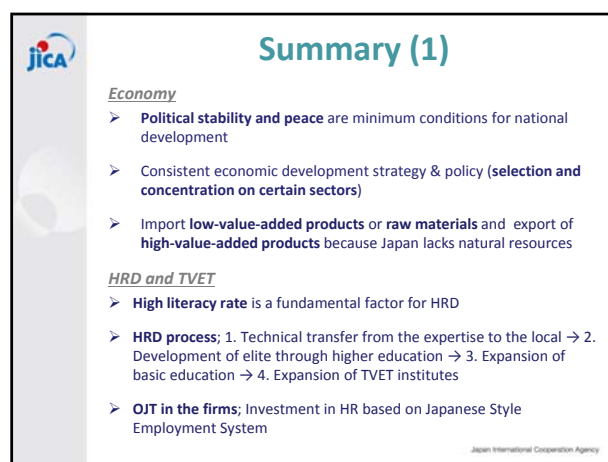
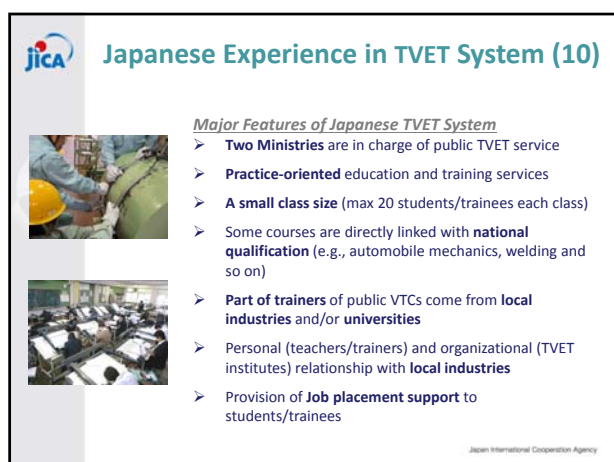
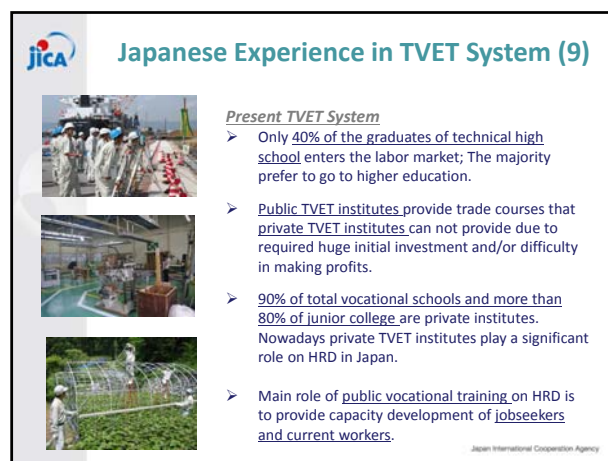
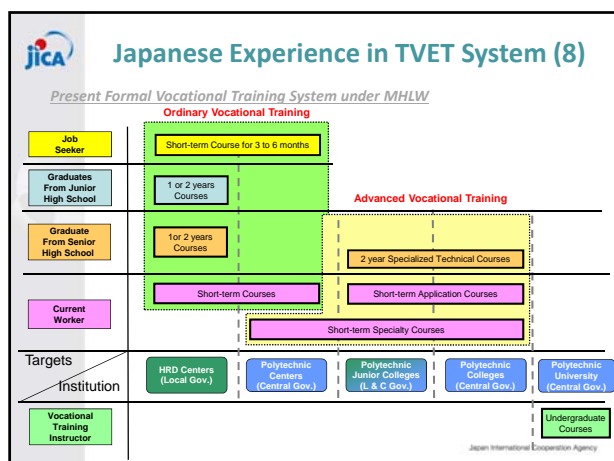
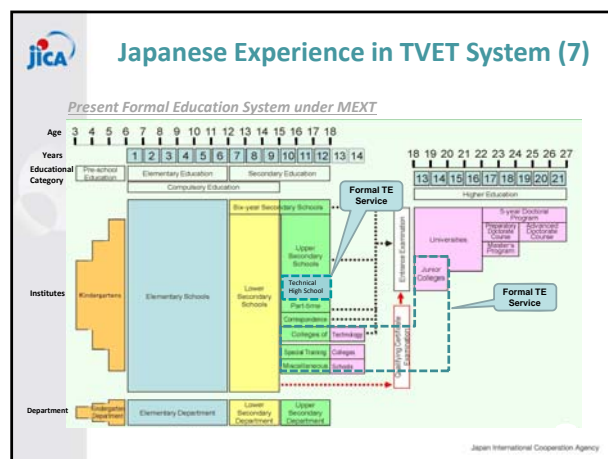
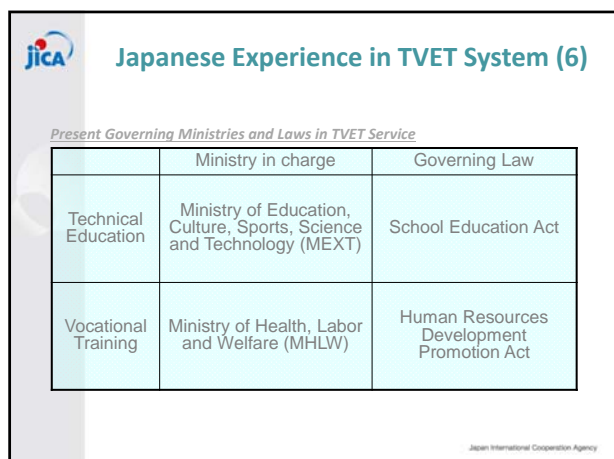
- 1980s~; Increase enrollment ratio of higher education (25.4% in 1965→31.9% in 1980→ 34.5% in 1995→59.1% in 2012)
- 1990s~; **Enrollment ratio of the above TVET institutes decrease**




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## Summary (2)

Lesson Learned

- No rich natural resources, **HR** should be a main factor for the national economy
- From an **agricultural-oriented country** to an **industrial- and/or service-oriented country**
- Utilization of the **expertise with a certain period of time**, not rely heavily on for long-term (technical self-reliance)
- Linkage between **expansion of TVET service** and **stage of economic development** (rapid economic growth)
- TVET system should be developed as part of **lifelong learning process** (both pre-service and in-service)
- Demarcation of role on **HRD between public and private sectors**
- From a **recipient country** to be an **aid donor**

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## Thank You for Listening

Japan International Cooperation Agency



Ministry of Education  
The Republic of Rwanda

The Project for Strengthening the Capacity of  
Tumba College of Technology Phase-2

The Republic of Rwanda

**Inception Report**

March 2013

Japan International Cooperation Agency  
System Science Consultants

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Attachment 1	Project Design Matrix
Attachment 2	Flow Chart
Attachment 3	Project Implementation System
Attachment 4	Expert Assignment Schedule
Attachment 5	Plan of Operation



## **Abbreviations**

AE	Alternative Energy
C/P	Counter Part
ESSP	Educational Sector Strategic Plan
ET	Electronics and Telecommunication
G/P	Good Practice
IT	Information Technology
JICA	Japan International Cooperation Agency
MINEDUC	Ministry of Education
OJT	On the Job Training
PDCA	Plan, Do, Check and Action
PDM	Project Design matrix
P/U	Production Unit
R/D	Record of Discussion
R&D	Research and Development
TCT	Tumba College of Technology
TVET	Technical and Vocational Education and Training
WDA	Workforce Development Authority

## **1. Background**

Rwanda's Vision 2020 aims at a knowledge-based and technology-led economy and gives high priority on human resource development in the field of science and technology. The industrial sector, however, faces serious shortages of practical technicians as a consequence of the genocide which occurred in 1994. Also in the educational sector, it is urgently needed to increase the opportunity of the secondary and upper level education, as it has been focused on expanding the basic education. Rwanda's Educational Sector Strategic Plan for 2010-2015 (ESSP 2010-2015) aims at improving education, particularly skills development, to meet the labor market demand, by increasing the coverage and quality of nine-year basic education and strengthening post-basic education, which includes technical and vocational education and training (TVET).

Accordingly, the government of Rwanda decided to establish a College of Technology with a curriculum aimed at producing higher technicians and set up Tumba College of Technology (TCT) in July 2007. In this effort, the government of Rwanda, in collaboration with JICA, conducted a five-year project, the "Project for Strengthening the Capacity of Tumba College of Technology" from July 2007 to June 2012, which resulted in the strengthening of academic and administrative capacity of the school, and the establishment of the TCT as an effective A1 level institution in Rwanda.

Despite the achievements, however, TCT still faces some challenges, especially the need to install a "mechanism" that ensures sustainable capacity development of its staff. Furthermore, some good practices are observed in TCT as the outputs of the project phase-1, but are not shared in the TVET sector yet. In order to cope with such challenges, the Government of Rwanda requested the Government of Japan for further Technical Assistance in the respected field.

In response to the request, the preparatory study team was dispatched from JICA in September 2012 to discuss the plan of cooperation with the government of Rwanda and relevant institutions. As a result, it is decided that "the Project for Strengthening the Capacity of Tumba College of Technology Phase-2" shall be implemented for 5 years from January 2013, and the Record of Discussions (R/D) was exchanged between the Permanent Secretary of MINEDUC and the Chief Representative of JICA Rwanda Office on 30 November 2012.

Building upon what has been achieved in the previous phase, the project phase-2 focuses on further strengthening of TCT, and dissemination of TCT's experience for the improvement of the TVET policy.

## 2. Project Design

### 2-1 Project Outline

The project shall be implemented based on the Project Design Matrix (PDM), which is shown as Attachment-1. The outline of the PDM is as follows.

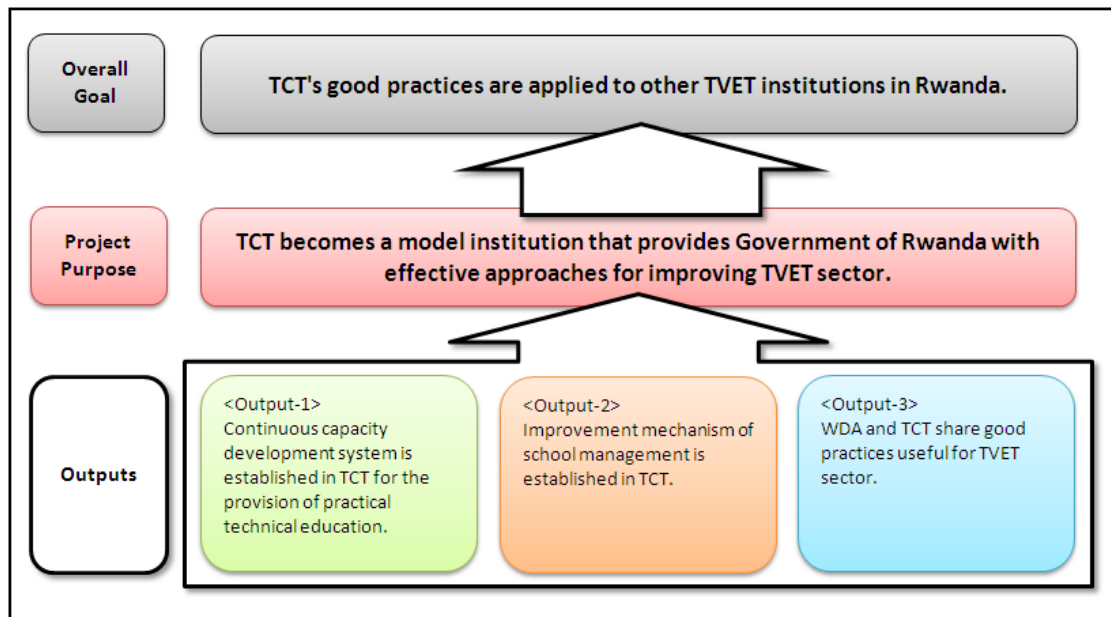


Figure Outline of the Project Design Matrix

### 2-2 Project Period

The project period is 5 years from March 2013 to February 2018.

### 2-3 Major Stakeholders

#### (1) Responsible Agency

Ministry of Education (MINEDUC)

#### (2) Project Target Group

Tumba College of Technology (TCT)

Workforce Development Authority (WDA)

#### (3) Beneficiary

Direct Beneficiary: 120 members of TCT staff, 100 officers of WDA

Indirect Beneficiary: 2100 students of TCT, 2300 students of outside course

(4) Donor Agency

Japan International Cooperation Agency (JICA)

## 2-4 Project Sites and Target Area

The project base offices shall be set up at Tumba main campus in Rulindo District and its Satellite in Kigali. In addition to those two places, the target area will be throughout Rwanda where the project needs to implement any of its activities especially on output 1 and 3.

## 3. Basic Principles of the Project

Considering the various factors around TCT and Rwandan TVET situation, the basic principles in implementing the activities on all three outputs of the project are shown below.

Basic Principle of the Project

<b>&lt;Basic Principle 1&gt;</b> Effective utilization of outputs and experience of the project phase-1
<b>&lt;Basic Principle 2&gt;</b> Putting priorities every year on each output
<b>&lt;Basic Principle 3&gt;</b> Harmonization among the three outputs

### 3-1 Basic Principle 1: Effective utilization of outputs and experience of the project phase-1

The outputs achieved in the project phase-1 are the base for implementing the phase-2.

As for hardware, the facilities and equipment set up in the phase-1 can be used for the activities of the production unit, which is supposed to be a main activity in the output 1 of the project phase-2. However it should be considered that the production unit activities never disturb the regular class.

Also TCT has acquired many things in the phase-1 apart from the hardware, such as various guidelines and systems, the external network, skills and knowledge, and working attitude. In the output 1, TCT tries to make contracts on a commercial base by utilizing its network with the industry section and the governmental organizations. In the mean time, the project team brings out the skills and

knowledge from the C/P and builds up more capacity through the production unit activities. In the output 2, the guidelines and the planning formats developed in the phase 1 are helpful for the improvement of the school management.

It is possible, even at this moment, to share some of the TCT's good practices implemented in the phase-1, namely the tracer survey of the graduates, class management, and reflection of the needs to the curriculum. TCT shall share those good practices with WDA in the early stage of the phase-2.

### **3-2 Basic Principle 2: Putting priorities every year on each output**

In order to achieve the expected outputs, the project puts priorities every year on each output as follows.

Priorities on Output-1

Year	Priorities
1 <sup>st</sup> Year (2013)	<ul style="list-style-type: none"> <li>Start-up of P/U</li> </ul>
2 <sup>nd</sup> Year (2014)	<ul style="list-style-type: none"> <li>Needs analysis / Strengthening of problem solving</li> <li>Feed back of P/U experience to the department</li> </ul>
3 <sup>rd</sup> Year (2015)	<ul style="list-style-type: none"> <li>Needs analysis / Strengthening of problem solving</li> <li>Reflection of P/U experience to the class</li> </ul>
4 <sup>th</sup> Year (2016)	<ul style="list-style-type: none"> <li>Strengthening proposal capacity</li> </ul>
5 <sup>th</sup> Year (2017)	<ul style="list-style-type: none"> <li>Self-management of P/U</li> <li>Reflection system of P/U experience to the regular class</li> </ul>

Priorities on Output-2

Year	Priorities
1 <sup>st</sup> Year (2013)	<ul style="list-style-type: none"> <li>School management planning (continue to the 4<sup>th</sup> year)</li> <li>Human resource management (continue to the 4<sup>th</sup> year)</li> </ul>
2 <sup>nd</sup> Year (2014)	<ul style="list-style-type: none"> <li>School management planning / Human Resource management</li> <li>Department management</li> <li>Carrier support</li> </ul>
3 <sup>rd</sup> Year (2015)	<ul style="list-style-type: none"> <li>School management planning / Human Resource management</li> <li>Finance / Procurement</li> </ul>
4 <sup>th</sup> Year (2016)	<ul style="list-style-type: none"> <li>School management planning / Human Resource management</li> <li>Quality assurance</li> </ul>
5 <sup>th</sup> Year (2017)	<ul style="list-style-type: none"> <li>Establishing the PDCA cycle</li> </ul>



#### Priorities on Output-3

Year	Priorities
1 <sup>st</sup> Year (2013)	<ul style="list-style-type: none"><li>• Co-working system of WDA and TCT</li><li>• Tracer survey (output of phase-1)</li></ul>
2 <sup>nd</sup> Year (2014)	<ul style="list-style-type: none"><li>• Department management</li><li>• Reflection of industry needs</li></ul>
3 <sup>rd</sup> Year (2015)	<ul style="list-style-type: none"><li>• School management planning</li><li>• Human resource management</li></ul>
4 <sup>th</sup> Year (2016)	<ul style="list-style-type: none"><li>• Production unit activity</li></ul>
5 <sup>th</sup> Year (2017)	<ul style="list-style-type: none"><li>• Spontaneous sharing of the good practice</li></ul>

### 3-3 Basic Principle 3: Harmonization among the three outputs

As mentioned above, the project has three outputs to be achieved. Each output is not independent but having close relations among them.

The activities of the production unit require various supports from the administration side such as procurement and finance unit. Also the cooperation from the existing departments is indispensable since the production unit members are selected from the department teachers.

The output-2, improvement of the school management, includes all the activities of TCT. It means the activities of output-1 and 3 should also be covered as the important factors of the school management.

The good practices, which will be shared with WDA in the output-3, are extracted from the activities of output-1 and 2.

The project team should be conscious of the above mentioned relations as a basic principle for the implementation of any of the activities.

## 4. Activities on Each Output

The flowchart of the project is as per Attachment-2. This chapter describes the activities on each output to be achieved in the project.

### 4-1 Activities on output-1

The output-1 is “Continuous capacity of development system is established for the provision of practical technical education”. In order to establish a continuous capacity development system, a production unit is expected to be set up in TCT. The purpose of the production unit is that it makes the teachers be forced to satisfy their client under the real pressure of the commercial base work, and then they will apply such experiences when they teach in the class. The activities on output-1 are as

follows.

#### Activities on Output-1

Output-1: Continuous capacity of development system is established for the provision of practical technical education	
2.1	Formulate action plan of the production unit
2.2	Set up “Production Unit and Management and Operation Guideline”
2.3	Conduct a needs survey
2.4	Conduct production unit activities
2.5	Conduct technical training according to the production unit activity
2.6	Review and evaluate production unit activities

As mentioned in the “Basic Principle-2”, the priorities on each year for achieving the output-1 are shown below.

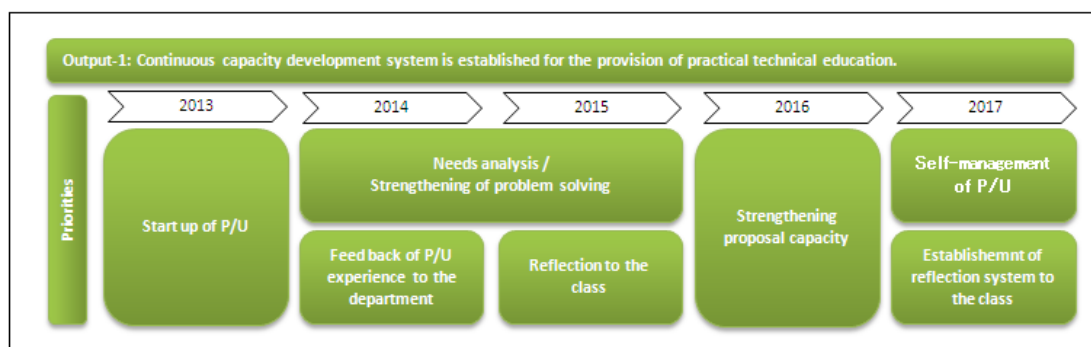


Figure Priorities on output-1 in each year

The members of the production unit are selected from the existing three departments. After having experience in the production unit for 1 or 2 years, the teachers will return to their original department and reflect their experience to the regular class. The activities of the production unit includes not only producing and selling something in TCT but also providing short-term training by using the technology that TCT has, research and development, and technical consultation. Also it includes the contribution to the community. The potential clients are private companies in the industry sector, the government agencies, and community around TCT.

The conceptual drawing of the continuous capacity development system through the production unit is shown below.

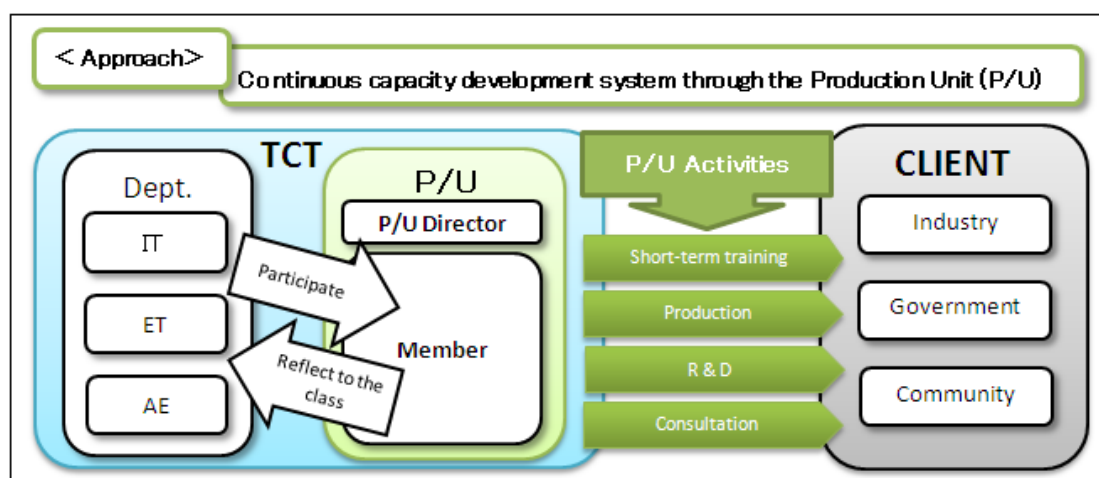


Figure Continuous Capacity Development System through the Production Unit

#### 4-2 Activities on output-2

The output-2 is “Improvement mechanism of school management is established in TCT.” The activities on output-2 are as follows.

##### Activities on Output-2

Output-2: Improvement mechanism of school management is established in TCT.	
2.1	Formulate school management plan
2.2	Design a monitoring system that fits to the actual situation of TCT
2.3	Conduct monitoring
2.4	Identify issues to be tackled
2.5	Share the issues to be tackled among TCT staff
2.6	Discuss the causes of issues and measures for improvement among TCT staff
2.7	Implement the measures for improvement
2.8	Carry out the activities of 2-3 to 2-7 above as a cycle
2.9	Conduct an internal satisfaction survey for TCT's school management

As mentioned in the “Basic Principle-2”, the priorities on each year for achieving the output-2 are shown below. Two important field of the school management, namely “School Management Planning” and “Human Resource Management” are taken as priorities in the 1st year (2013), but these two will be continuously supported by the project up to the 4<sup>th</sup> year (2016). The internal satisfaction survey will be conducted every year.

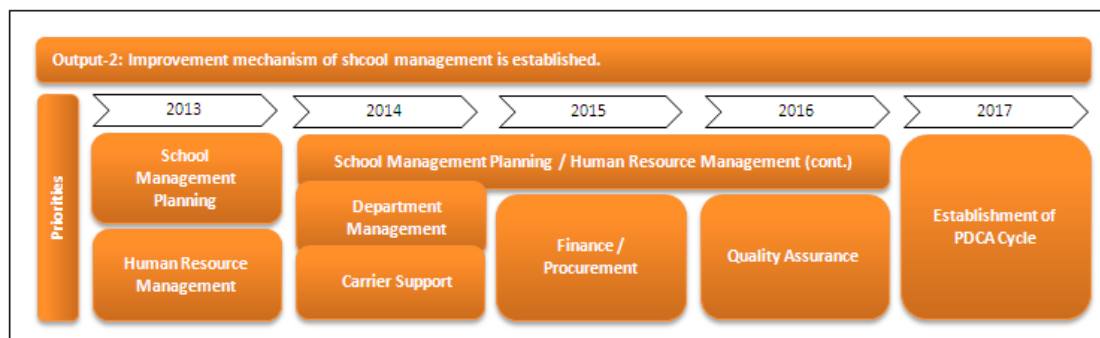


Figure 1 Priorities on Output-2

The approach to achieve the output-2 is “Establishment of the stable PDCA Cycle” in the school management. PDCA stands for Plan, Do, Check, and Action. The following figure shows the detail of PDCA cycle which the project aims to establish in TCT. The length of PDCA cycle varies according to the field of school management, and even one field has several cycle lengths. For example, Human Resource Management has basically one year cycle, and at the same time, it has quarterly cycle for its periodical monitoring.

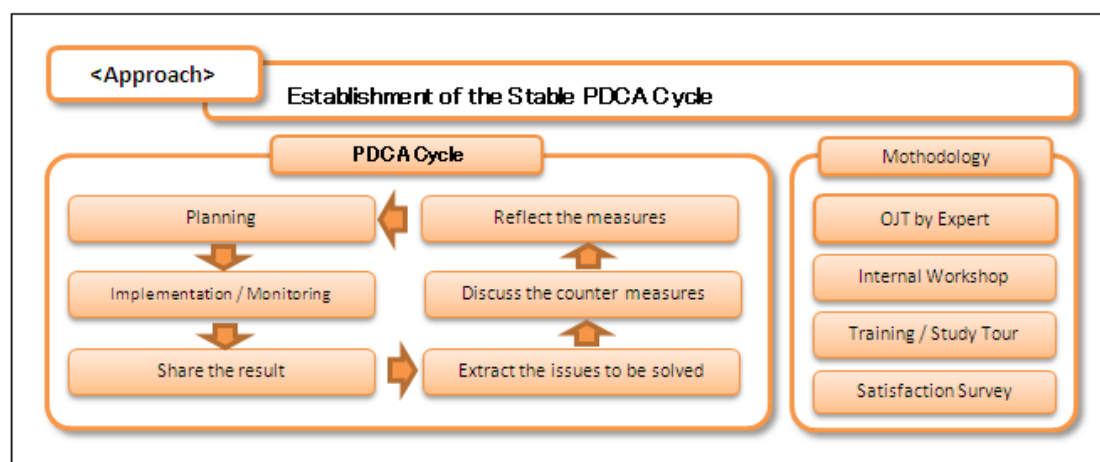


Figure 2 PDCA Cycle and Methodology for the improvement of the School Management

The methods for establishment of PDCA cycle are the combination of OJT by the experts, internal workshop, training and study tour, and satisfaction survey. The expected effects of each method are as follows. The purpose of conducting the satisfaction survey toward the school management is not only measuring the effects of the output-2 but also aiming to change the mindset of TCT staff by sharing the survey result among them.

#### Methodology on Output-2

Methodology	Effects
OJT by Expert	Advices to the daily work,
Internal Workshop	Share the vision among TCT staff
Training / Study Tour	Skill up, seeing good examples through the observation
Satisfaction Survey	Effect measurement, share the result among TCT staff

#### 4-3 Activities on Output-3

The output-3 is “WDA and TCT share good practices useful for TVET sector.” The activities on the output-3 are as follows.

#### Activities on Output-3

Output-3: WDA and TCT share good practices useful for TVET sector.	
3.1	WDA and TCT identify issues in TVET sector for the quality improvement
3.2	TCT reviews TCT's activity regularly
3.3	WDA and TCT summarize TCT's good practices and lessons learned
3.4	TCT supports WDA to implement the dissemination of good practice

As mentioned in the “Basic Principle-2”, the priorities on each year for achieving the output-3 are shown below. The priorities with “G/P” flag are the items of good practices expected to be shared with WDA. The nominated good practices in 2013 and 2014, “Tracer Survey”, “Department Management”, and “Reflection of Industry Needs” are the ones that have been observed as effective in the project phase-1. The ones of year 2015 and 2016 are expected to be extracted from the output-1 and 2.

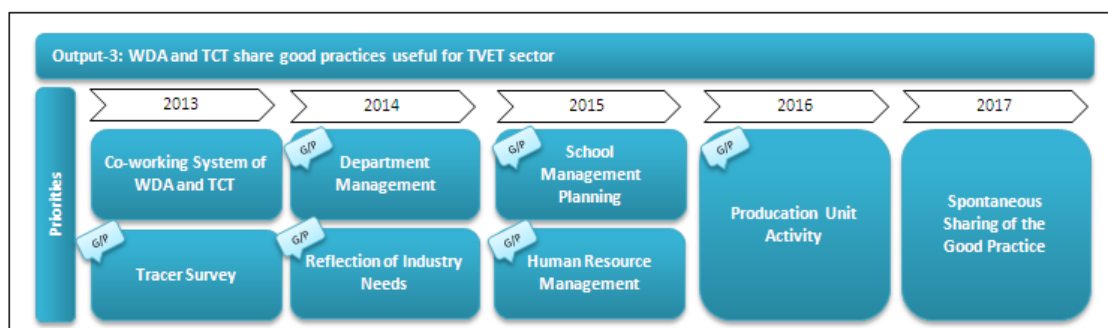


Figure Priorities on Output-3

The approach to achieve the output-3 is “Reflection of the practical experience”. It is important to extract the key points of good practice from the practical experience of TCT. In order to share the TCT’s good practices with WDA, the project proposes to establish “Good Practice Sharing Committee” between TCT and WDA. The committee will have meetings at least once in a quarter of the year. The dissemination of the good practice is not a mandate of TCT. However when WDA disseminates the good practices to other TVET institutions, TCT provides WDA with technical support. The TCT’s good practices should be standardized at the time of dissemination into the forms that can be applied to other TVET institutions. The implementation system of output-3 is shown in the following figure.

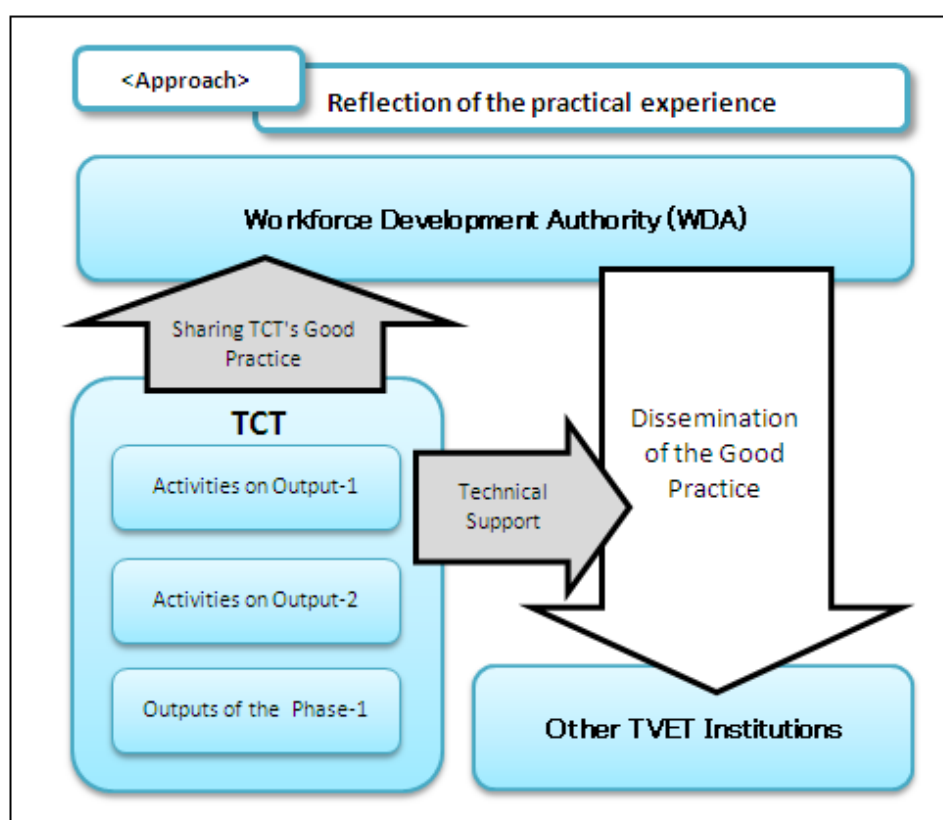


Figure Implementation System of Output-3

## 5. Project Implementation

### 5-1 Implementation System

The project implementation system is shown in the figure as per attachment-3.

### 5-2 Personnel Plan

The members of JICA expert team and their responsibilities are as follows.

Title	Name of Expert	Responsibilities
Chief Advisor / TVET Policy 1	Ryuichi Nishiyama	Overall supervision of the project, coordination of the project team, decision making, direct in-charge of output-3, report making, etc.
Deputy Chief Advisor / TVET Policy 2	Mariko Ikawa	Overall supervision of the project as a deputy Chief Advisor, coordination of the project team, direct in-charge of output-3, report making, etc.
Production Unit 1	Tatsumi Aragaki	In-charge of output-1, supervision of the P/U activities, coordination of the experts on IT, ET and AE, needs survey, etc.
Production Unit 2 / Training Planning	Nana Kondo	In-charge of output-1, supervision of the P/U activities, coordination of the expert on IT, ET and AE, needs survey, planning of the trainings and study tour
Information Technology	Naoyuki Sato	In-charge of IT relating activities of the P/U, technical training to P/U members, needs identification, etc.
Electronics and Telecommunication	Junichiro Tomiyasu	In-charge of ET relating activities of the P/U, technical training to P/U members, needs identification, etc.
Alternative Energy	Ravi Chhetri	In-charge of AE relating activities of the P/U, technical training to P/U members, needs identification, etc.
School Management 1	Yumiko Ono	In-charge of output-2, school management planning, introducing PDCA cycle on school management, satisfaction survey, etc.
School Management 2 / Project Coordinator	Erika Asada	In-charge of output-2, school management planning, introducing PDCA cycle on school management, satisfaction survey, coordination of the project team, etc.

The expert dispatch plan is as per attachment-4.

### 5-3 Implementation Schedule

The plan of operation of the project is shown in Attachment-5.

## 6. Reports

The project will make the following reports.

Report	Time of submission
Inception Report	March 2013
Progress Report (1 <sup>st</sup> Year)	December 2013
Progress Report (2 <sup>nd</sup> Year)	December 2014
Progress Report (3 <sup>rd</sup> Year)	December 2015
Progress Report (4 <sup>th</sup> Year)	December 2016
Work Completion Report	February 2018



## Attachment-1 TCT Phase-2 Project Design Matrix

November 2012 (Version 0.0)

Name of the Project            Strengthening the Capacity of Tumba College of Technology Phase-2

Project Duration                January 2013 – December 2017 (5 years)

The Project Target Area        Tumba, Rulindo District, Northern Province

Project Target Group           Tumba College of Technology (TCT) and WDA

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTION
< OVERALL GOAL > TCT's good practices are applied to other TVET institutions in Rwanda.			
< PROJECT PURPOSE > TCT becomes a model institution that provides Government of Rwanda with effective approaches for improving TVET sector.	<ul style="list-style-type: none"> <li>TCT's good practices are adopted in the plan of activities of WDA</li> <li>Employment rate after one year of graduation: more than 80%</li> <li>Employer's satisfaction rate of TCT graduates after one year of employment: more than 85%</li> </ul>	<ul style="list-style-type: none"> <li>Interview to WDA staff</li> <li>WDA policy papers and activity reports</li> <li>Tracer survey report by TCT</li> <li>Employer's satisfaction survey report by TCT</li> </ul>	The Rwandan government continue to support TVET institutions to adopt good practices.
< OUTPUTS > 1. Continuous capacity development system is established in TCT for the provision of practical technical education.	1.1 Production Unit Management and Operation guideline is formulated and activities are conducted according to the guideline. 1.2 The percentage of academic staff who have been involved in production unit activities for more than once: More than 80% by the end of the project 1.3 Number of activities adopted and implemented by production unit: at least 6 activities/year 1.4 Improvement of technical skills of academic staff in their respective field of expertise.	<ul style="list-style-type: none"> <li>Activity record of production unit</li> <li>Interview to PU members</li> <li>Evaluation by JICA experts</li> <li>Production unit report</li> <li>Internal evaluation report (course evaluation etc.)</li> </ul>	
2. Improvement mechanism of school management is established in TCT.	2.1 PDCA cycle on school management is in practice. 2.2 Satisfaction level of TCT staff to the school management is improved.	<ul style="list-style-type: none"> <li>School Management Records</li> <li>Evaluation by JICA experts</li> <li>Satisfaction survey report</li> </ul>	
3. WDA and TCT share good practices useful for TVET sector.	3.1 Regular meetings are held between WDA and TCT for sharing good practices 3.2 Dissemination of TCT's good practices to other	<ul style="list-style-type: none"> <li>Meeting Minutes</li> <li>WDA's action plan</li> <li>Progress report of the</li> </ul>	

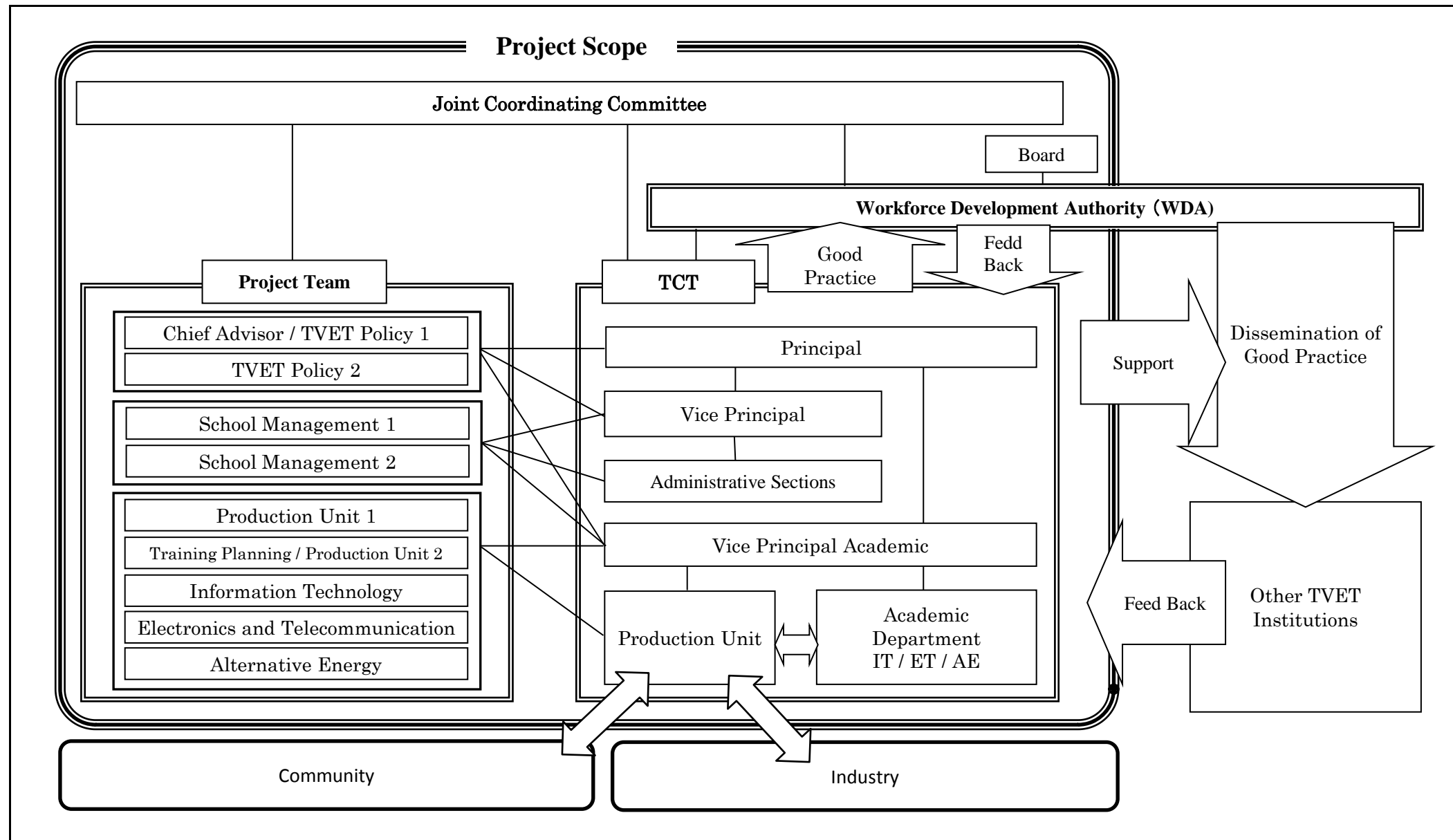
	<p>TVET schools are included in WDA's action plan</p> <p>3.3 Number of events collaborated between WDA and TCT for the dissemination of TCT's good practices to other TVET schools: 5 times during the project period</p>	project	
<p>&lt; ACTIVITIES &gt;</p> <p>1.1 Formulate action plan of the production unit</p> <p>1.2 Set up Production Unit Management and Operation Guideline</p> <p>1.3 Conduct a needs survey</p> <p>1.4 Conduct production unit activities</p> <p>1.5 Conduct technical training according to the production unit activity</p> <p>1.6 Review and evaluate production unit activities</p> <p>2.1 Formulate school management plan</p> <p>2.2 Design a monitoring system that fits to the actual situation of TCT</p> <p>2.3 Conduct the monitoring</p> <p>2.4 Identify issues to be tackled</p> <p>2.5 Share the issues to be tackled among TCT staff</p> <p>2.6 Discuss the causes of issues and measures for improvement among TCT staff</p> <p>2.7 Implement the measures for improvement</p> <p>2.8 Carry out the activities of 2-3 to 2-7 above as a cycle</p> <p>2.9 Conduct an internal satisfaction survey for TCT's school management</p> <p>3.1 WDA and TCT identify issues in TVET sector for the quality improvement</p> <p>3.2 TCT reviews TCT's activity regularly</p> <p>3.3 WDA and TCT summarize TCT's good practices and lessons learned</p> <p>3.4 TCT supports WDA to implement the dissemination of good practice</p>	<p>&lt; INPUTS &gt;</p> <p><u>Input from Japanese Government</u></p> <p>1. Experts</p> <p>(1) Chief Advisor</p> <p>(2) School Management</p> <p>(3) Information Technology</p> <p>(4) Electronics and Telecommunication</p> <p>(5) Alternative Energy</p> <p>(6) Production Unit Management</p> <p>(7) TVET Policy</p> <p>(8) Equipment Planning</p> <p>(9) Other experts as necessary</p> <p>2. Training of counterparts in Japan, Rwanda, and other countries</p> <p>3. Provision of machinery and equipment</p> <p>4. Local Expenses (seminar/workshop etc.).</p> <p><u>Inputs from Rwandan Government</u></p> <p>1. Assigning of counterpart personnel including Head of Production Unit</p> <p>2. Buildings and facilities</p> <ul style="list-style-type: none"> <li>- Electricity, water supply, and internet connection for the whole TCT compound and Kigali Liaison Office</li> <li>- Office space equipped with office furniture for JICA experts</li> <li>- Accommodations for JICA experts at TCT</li> </ul> <p>3. Equipment and Machineries</p> <ul style="list-style-type: none"> <li>- Basic equipment and machineries for the implementation of the courses</li> <li>- Basic equipment for TCT Branch</li> </ul> <p>4. Allocation of Budget</p> <ul style="list-style-type: none"> <li>- Salaries and necessary allowances for TCT staff</li> <li>- Expenses for electricity, water, gas, fuel and contingencies</li> <li>- Operational expenses for customs clearance, storage, domestic transportation, and installation of the project equipment provided by JICA</li> </ul>		<p>Rwanda's TVET Policy does not change drastically.</p> <p>&lt;PRE-CONDITION&gt;</p> <p>Production Unit is established with a Head of the Unit appointed and basic facilities such as an office set up.</p>

- |  |  |  |
|--|--|--|
|  | <ul style="list-style-type: none"><li>- Expenses for maintenance of the project facilities and equipment</li><li>- Expenses for the implementation of the courses</li><li>- Other necessary local expenses for the project</li></ul> |  |
|--|--|--|

## Attachment-2 Flowchart of the Project

		1st Year March – December 2013	2nd Year February – December 2014	3rd Year February – December 2015	4th Year February – December 2016	5th Year February 2017 – February 2018	Output / Purpose
Production Unit (P/U)	Priorities	Start-up of P/U	Needs Analysis / Strengthening of Problem Solving		Strengthening Proposal Capacity	Self-Management of P/U	【Output-1】 Continuous Capacity development system is established for the provision of practical technical education.
	Activities	<ul style="list-style-type: none"> <li>Formulate action plan of the P/U</li> <li>Set up "P/U Guideline"</li> <li>Conduct needs analysis</li> <li>Conduct P/U activities</li> <li>Conduct technical trainings</li> <li>Review and evaluate P/U activities</li> </ul>	<ul style="list-style-type: none"> <li>Review the P/U activities</li> <li>Review the P/U Guideline</li> <li>Conduct P/U activities</li> <li>Technical trainings (needs analysis)</li> <li>Feed back of P/U experience to the dept.</li> </ul>		<ul style="list-style-type: none"> <li>Review the P/U activities</li> <li>Review the P/U Guideline</li> <li>Conduct P/U activities</li> <li>Technical trainings (problem solving)</li> <li>Reflection of P/U experience to the class</li> </ul>	<ul style="list-style-type: none"> <li>Review the P/U activities</li> <li>Conduct P/U activities</li> <li>Reflection of P/U experience to the class</li> <li>Presentation of P/U activities</li> </ul>	
School Management	Priorities	School Management Planning Human Resource Management	School Management Planning / Human Resource Management (cont.)			Establishing the PDCA Cycle	【Output-2】 Improvement Mechanism of school management is established in TCT.
	Activities	<p>School management Satisfaction Survey (Baseline)</p>	<p>Department Management Carrier Support</p> <ul style="list-style-type: none"> <li>Strengthening the PDCA Cycle on the priority areas</li> <li>Training for carrier support section</li> </ul> <p>School management Satisfaction Survey (Monitoring)</p>			<ul style="list-style-type: none"> <li>Reflect the result of satisfaction survey to the school planning</li> <li>Strengthening the PDCA Cycle on the priority areas</li> <li>Training for finance and procurement section</li> </ul> <p>School management Satisfaction Survey (Monitoring)</p>	
Good Practice (G/P)	Priorities	Co-working system of WDA and Tracer Survey	Department Management Reflection of Industry Needs	School Management Planning Human Resource Management	Production Unit Activities	Spontaneous Sharing of the Good Practice	【Output-3】 WDA and TCT share good practices useful for TVET sector.
	Activities	<ul style="list-style-type: none"> <li>Set up WDA-TCT committee</li> <li>Extract issues in the TVET sector</li> <li>Formulate G/P dissemination plan</li> <li>Support dissemination of G/P (tracer survey) (from the output of Phase-1)</li> </ul>	<ul style="list-style-type: none"> <li>Conduct WDA-TCT committee</li> <li>Extract issues in the TVET sector</li> <li>Review activities of the previous year</li> <li>File up TCT's G/P and lessons learned</li> <li>Formulate annual plan of G/P dissemination</li> <li>Support dissemination of G/P (department management / reflection of industry needs) (output of Phase-1)</li> </ul>	<ul style="list-style-type: none"> <li>Conduct WDA-TCT committee</li> <li>Extract issues in the TVET sector</li> <li>Review activities of the previous year</li> <li>File up TCT's G/P and lessons learned</li> <li>Formulate annual plan of G/P dissemination</li> <li>Support dissemination of G/P (school management planning / human resource management)</li> </ul>	<ul style="list-style-type: none"> <li>Conduct WDA-TCT committee</li> <li>Extract issues in the TVET sector</li> <li>Review activities of the previous year</li> <li>File up TCT's G/P and lessons learned</li> <li>Formulate annual plan of G/P dissemination</li> <li>Support dissemination of G/P (production unit activities)</li> </ul>	<ul style="list-style-type: none"> <li>Conduct WDA-TCT committee</li> <li>Extract issues in the TVET sector</li> <li>Review activities of the previous year</li> <li>File up comprehensive G/P activities</li> <li>Monitor G/P sharing and dissemination</li> <li>File up G/P dissemination method</li> </ul>	
Common Activities	Management	▲ JCC (IC/R approval) JCC ▲	JCC ▲	JCC ▲ Mid-term review	JCC ▲	JCC ▲ Terminal evaluation	【Purpose】 TCT becomes a model institution that provides Government of Rwanda with effective approaches for improving TVET sector.
	Reports	▲ Inception Report Progress Report (1st year) ▲	Progress Report (2nd year) ▲	Progress Report (3rd year) ▲	Progress Report (4th year) ▲	Project Completion Report ▲	

### Attachment-3 Project Implementation System



### Expert Dispath Plan

	Name	Y	2013												2014												2015												2016												2017												2018		M/M																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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## Attachment-5 PLAN OF OPERATION

### Tentative Plan of Operations (PO) Project for Strengthening the Capacity of Tumba College of Technology Phase-2

March 1, 2013

Calendar Year		2013				2014				2015				2016				2017				2018
Month		3	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-2
Output	Activities	Year 1				Year 2				Year 3				Year 4				Year 5				
1 Continuous capacity development system is established for the provision of practical technical education.	1-1 Formulate action plan of the production unit																					
	1-2 Set up production unit management and operation guideline																					
	1-3 Conduct a needs survey																					
	1-4 Conduct production unit activities																					
	1-5 Conduct technical training according to the production unit activity																					
	1-6 Review and evaluate production unit activities																					
2 Improvement mechanism of school management is established.	2-1 Formulate school management plan																					
	2-2 Design a monitoring system that fits to the actual situation of TCT																					
	2-3 Conduct the monitoring																					
	2-4 Identify issues to be tackled																					
	2-5 Share the issues to be tackled among TCT staff																					
	2-6 Discuss the cause and of issues and measures for improvement among TCT staff																					
	2-7 Implement measures for improvement																					
	2-8 Carry out the activities of 2-3 to 2-7 above as a cycle																					
	2-9 Conduct an internal satisfaction survey for TCT's school management																					
3 WDA and TCT share good practices useful for TVET sector.	3-1 WDA and TCT identify issues in TVET sector for the quality improvement																					
	3-2 TCT reviews TCT's activity regularly																					
	3-3 WDA and TCT summarize TCT's good practices and lessons learned																					
	3-4 TCT supports WDA to implement the dissemination of good practice																					
Other Activities	Joint Coordinating Committee																					
	JICA Mission																					
	Report																					



: PDCA (Plan, Do, Check, and Action) cycle on School Management

PR: Progress Report

Annex 2 :  
Production Unit Guideline Structure



## **TCT Production Unit Guideline: Core structures**

### **1 Objectives of PU**

- **Mission/Aims**

- What is PU for? continuous capacity development system > income generation
- Reference: R/D

- **Areas of PU activities**

- PU should be restricted on activities that TCT can offer its technical advantages (want to differentiate simple income generation activities and PU activities)
- TCT PU cannot hinder the industry, but rather should support the development of the respected industry
- Examples:
  - ✧ Training (e.g....)
  - ✧ Consultations (e.g....)
  - ✧ Manufacturing (e.g....)
  - ✧ Research & Development (e.g....)
  - ✧ Community Outreach (e.g....)
- who/which unit should be in charge of other income generating activities? Or all income generation activities should be managed by one unit?

- **Possible partners, clients**

- Industries, government organizations, NGOs, communities
- can make a separate list of contacts

### **2 Structures and functions of PU (institution) and TCT company**

- **The relationship between PU and the TCT company**

- How the PU and the PU Company work together?
- By whom should the PU Company be headed?
- How the generated income should be transferred from the company to TCT?
- How about the relationship of the PU and other units? E.g. Incubation center, ITC satellite center ...

- **Setting up of TCT company & its function**

- Location
- TCT Bank account, Taxation
- Board of Directors
- Assets, start-up investment

- **Structure of PU & its function**

- Permanent staff: HOU, admin staff, procurement, coordinator etc
- Department Teachers (1~2 teachers are assigned for 1~2 years)

- Activity based support from teachers, instructors and technicians
- Involvement of students? (Incubation center, entrepreneurship club etc.)

- **Workload**

- PU staff should be hired by TCT or by the PU Company?
- TCT teachers have contract with the PU Company as well, for the duration of the time they belong to the PU?
- 

### 3 **Budgets and Equipment**

※this should depend on how the company is set up and its relationship with TCT

- **Running cost**

- Office equipment, printing etc

- **Operational cost**

- Transportation
  - ✧ In case of a contracted activity, transportation costs can be included in the budget items.

- **Source of funds**

- By whom each cost should be borne by?
  - ✧ TCT Annual Budget → cannot be used for company activities
  - ✧ PU Company Income
  - ✧ Client

- **Utilization of TCT facilities and equipment**

- Company pays TCT rental fees?
- General rules: priority should be given to teaching activities
- Procedures to use TCT facilities and equipment for PU activities (and staff?)

- **Procurement procedures**

- Should it be done by TCT or by the company?
- Coordination with admin bodies of TCT (Finance, Procurement, Academic)

### 4 **Selection process of PU**

- **Process**

- Needs Survey → Submission of Proposal → Selection
- By when?? Can a proposal be submitted anytime??

- **Selection Committee**

- Members: TCT boards, experts input
- Include outside personnel??

- **PU selection criterion**

- Mandatory: How the activity can improve the quality of teaching at TCT

- The levels of income generation to be expected
- Relevance of the proposed activities to the skills of TCT
- Feasibility of the project (funds, human resources, effects on school activities & workloads of teacher etc.)

- **PU proposal format**

## **5 Distribution of PU generated incomes**

- **PU running & operational cost**
- **Kick-back on teachers' salary**
- **Company account →TCT account**

## **6 Monitoring and review of PU activities**

- **Monitoring procedures**
  - Quarterly monitoring session? Final presentation and review
  - Monitoring/review points
  - Who should be involved in the monitoring?
- **Reporting**
  - What to be included in PU activity reports?
    - ✧ Descriptions of activities
    - ✧ lessons learned, skills gained
    - ✧ how to be reflected on TCT teaching
  - Who should be in charge of making reports?

## **7 Reflection of PU activities on the TCT teaching qualities**

- **PU involved teachers' responsibilities**
- **Internal workshop**
- **Curriculum change??**

## **8 Promotion**

- **Brochure**
  - Only in English? Or should it be translated in Kinyarwanda?
- **Demonstration (sample)**
- **TAG meeting**
- **Media, DVDs**
- **PPT**

Annex 3 :  
Experiences of PU Activities in Other Institutions

## **Production Unit experiences at IPRCs**

### **<General overview>**

Based on the interview with Mr. BAMWINE Gordon, WDA personnel in charge of Business Incubation and Production Unit, the general overview of production unit among TVET schools are as follows;

- Among TVET schools, IPRC-Kigali and VTC Mpanda are the ones that have a good experience in conducting production unit.
- IPRCs – Other than IPRC-Kigali, IPRCs are either just starting the PU (North, South, and West), or not having a PU yet (East).
- VTCs – Currently, only VTC Mpanda has a good experience in PU. Others might have a few experiences but not well recognized.
- TSSs – no school has a PU.

### **<IPRCs>**

#### **● IPRC-Kigali**

- Structures of the PU
  - IPRC-Kigali has a PU within the school and a private company independent of the institution.
  - The PU has 2 staff, a coordinator (Prosper) and an accountant who looks at the income activities.
  - The company is headed by a lecturer of the institution, and is now looking to hire somebody who can look after the finance issues of the company.
- Roles of the PU
  - The company was set up 1 month ago, registered under the RDB. The PU used to be in charge of all the income generation activities within IPRC-Kigali. Now that the company is set up, they are expecting the company to run all future income generation activities, in which case the PU will be acting just as a coordination body within the institution, e.g. to arrange a supporting teacher for a particular activity.
- IPRC-Kigali company
  - IPRC-Kigali tried to work through the PU, yet it was difficult as they always had to go through public procedures. Setting up a company will make it easier for them to procure and bid in a tender.
- Registration of the company & bank account
  - The company was registered under the RDB, and approved last month. They will soon be opening a private bank account.
  - The company must have a private account, as taxation should be based on that.

- To be registered as a company, it needs to have the clear management structure, and procedure. Clear statement is required.
- As an institution, IPRC-Kigali has 2 bank accounts, of which one is for government income, and the other non-government income. Both are registered as government account, so when they want to use money from the private account, they still need to go through the public procedures.
- Company
  - Hired a school staff as a head. Technical position is secured by the IPRC. But the running of the company, admin and marketing, the company needs to hire somebody from outside.
  - Company finance and institution finance is different
  - Board of directors
  - Nonetheless, when the company wants to use the generated income, it has to be approved by the board of directors. When company needs to buy equipment etc.. Whenever the company uses money, it needs to be justified. There is certain procedure.
  - Teachers also get involved and it is itemized clearly with tax indications. When teachers are involved in PU activities, the company gives a contract for a specific work.
  - Workload is not a problem because they are given separate contract and paid according to the agreement. When they know that they will get paid they have no problem working late. For small jobs they might work voluntarily, they differentiate the small jobs and consultancy jobs. Pay them for the labor according to the nature of the job.
  - Of the income generated, what was deducted of teacher contract payment and running cost etc. goes to the college, and from that the college uses the income to top-up 30%.
  - To be registered as company financial procedures needs to be made clear. Still working on it, but how we employ people and how to pay salary etc. needs to be clear.
  - The company has the board of directors, which is comprised of the school principle and other concerned personnel. The company, though treated as a purely autonomous entity, has to be accountable to the board of directors.
  - Is owned by the school, yet it acts only as a shareholder, allowing the company to have its own autonomy. The company, nonetheless, has to be accountable to the board of directors, which is composed of a school principal and other concerned personnel. report everything to the school and
- Types of services
  - Mostly tender and some provision of trainings
  - In order to bid a tender, the institution needs to have a company.

- Currently, IPRC-Kigali is contracted by RTDA for demarcation of the road project in the east. 1 billion RWF contract.
- Mostly go for tender
- Sometimes do promotions as well. Invite people to show the products and expo. Work with private companies to carry out consultancy work
- Research and development is not yet done, but intending to do.
- Training is also a big source of income. We have evening courses. Diploma programs and specialized courses e.g. on GIS, IT and others. Sometimes curriculum is tailored according to the needs of the client.
- Areas of service
  - It is not that they conduct all the areas, as some areas are more profitable than others.
  - Mechanical, machine, civil, automobile, not electrical installations but now we can
  -
- Reflection of PU to teaching
  - Not done much. If it is convenient, sometimes students are involved. Students can be involved in the process if possible.
- Staff
  - Sometimes people from outside is hired. Necessary equipment is also rented. If the project is well designed, then you could include everything you need when bidding.
  - It is important not depend on one individual. Work as a team and talk with management
- PU selection
  - PU selection, small scales are ok, but the approval from the management is required/ before entering the bidding, the management will be notified and asked for an approval.
  - They look mostly at the benefit in terms of money. Sometimes social activities are conducted, but the income is the most important factor to be justified at the board of directors.
  - If transportation is required, it could be included within the proposal. You need to include everything you need in the proposal.
  - Other than that if the car or transportation cost is not included, the school car can be used. IPRC-Kigali has 3 cars and 1 bus (of which 3 were bought by KOICA). PU can use school cars anytime they want.

● **IPRC-South**

- Just starting PU.

- **IPRC-West**

- They are still in the planning phase and trying to prepare equipment for the PU. .  
However, the IPRC-West has a partnership with the Rwandan Police, and is currently contracted for the vehicle inspection services.

- **IPRC-East**

- No PU set up or income generation activities conducted yet. (←according to Gordon.  
But it is better to confirm. They might have done some income generation activities.)



## TCT PU Guideline Survey: NUR Experience

### 1. Human Resource

Items	Questions	Responses
<b>Workload</b>	<ul style="list-style-type: none"> <li>- Teaching hours and PU hours maybe conflicting at times. How do they manage to make sure that both activities won't affect each other?</li> </ul>	<ul style="list-style-type: none"> <li>- Teaching hours are independent. An academic staff has to cover his/her normal workload. If he/she is engaged in consultancy activities he/she does them on separate contract. No time allowances for consultancy activities from the normal workload.</li> <li>- Payment rates are established in the guideline and used in case of contract given and depends on the nature of the project</li> </ul>
	<ul style="list-style-type: none"> <li>- Even if the responsibilities are separated by contracts (contract for school and contract for a project), you cannot predict how much work PU activities actually requires.</li> <li>- PU activities can sometimes hamper teaching activities, e.g. when something unexpected/accident happens and need additional attention. How do they manage in those kinds of situations?</li> </ul>	<ul style="list-style-type: none"> <li>- Each activity ( Teaching and Consultancy) is independent</li> <li>- Each activity is independent and treated differently. An academic staff involved in consultancy has to find a time for it provided that it doesn't affect his main activity which is teaching</li> <li>- At UNR, teaching ours are set to 360hours per year and a teach may teach his or her hour in semester or even less depending on the course taught and the rest of the time can be used for consultancy services</li> <li>- Consultancy guideline plays a big role in the smooth running of the activitie</li> </ul>
	<ul style="list-style-type: none"> <li>- Is there any limit for teachers to sign PU contracts (or even non-PU non-school related contract), outside of school contract? The school has any regulation on that?</li> </ul>	<ul style="list-style-type: none"> <li>- Non limit, but it has to pass through the Consultancy bureau.</li> <li>- The consultancy will make sure that no overlapping contract that my result in poor performance</li> <li>- Guideline in place</li> </ul>

	<ul style="list-style-type: none"> <li>- Are there any procedures to assign or approve an academic staff for PU activities? How academic departments are involved in this process?</li> <li>- Academic departments have comprehensive information on how much their academic are involved in PU activities?</li> <li>- How PU work with academic departments to make sure that PU won't affect the teaching?</li> </ul>	<ul style="list-style-type: none"> <li>- Procedures are outlined in the consultancy policy. After getting a consultancy. The consultancy bureau requests faculty members depending on the required skills that are needed to carry out that consultancy.</li> <li>- Academic and consultancy are separate and work on separated contract and non affects the other.</li> </ul>
	<ul style="list-style-type: none"> <li>- How do they avoid issues of double payment/double contract?</li> <li>- Is there a mechanism to make sure that academic staff fulfills minimum acceptable working hours (18 hours), before engaging in PU activities?</li> </ul>	<ul style="list-style-type: none"> <li>- Consultancy is paid separately from the normal duties. If an academic staff doesn't have the required workload as determined by HEC he/she is treated as a part time</li> <li>- Yes academic ours are fulfilled as teachers belongs to departments not to consultancy. They are hired like other personnel who have the skill required by the consultancy</li> </ul>
	<ul style="list-style-type: none"> <li>- Is there no contradiction to have separate contracts at the same time? If someone has a full-time contract, s/he is not allowed to engage in any other business activities.</li> </ul>	<ul style="list-style-type: none"> <li>- A separate contract is allowed</li> <li>- The nature of teaching style allows teacher to have more time for the consultancy activities</li> </ul>
<b>Incentives</b>	<ul style="list-style-type: none"> <li>- How do they give incentives to academic staff? Is it given by hours of work, by amount of work, or by percentage of the total contract fee?</li> </ul>	<ul style="list-style-type: none"> <li>- The payment is based on the contract depending on levels of staff to participate in the consultancy for example a Professor is not paid like a tutorial Assistant, an Administrative Assistant is not paid as a Director, etc</li> </ul>
	<ul style="list-style-type: none"> <li>- Are there any other forms of incentives to encourage active involvement of academic staff in PU?</li> </ul>	<ul style="list-style-type: none"> <li>- They only give money based on the contract</li> <li>- Also, for anyone who brought in a project big or small has to get his portion(project director)</li> </ul>
<b>Overtime</b>	<ul style="list-style-type: none"> <li>- How do academic staff and the school manage the work outside of normal working hours? (after 5pm, holidays)</li> </ul>	<ul style="list-style-type: none"> <li>- They rarely meet such cases and the Government discourages overtime payments in form of money</li> </ul>

<b>Supervision</b>	<ul style="list-style-type: none"> <li>- Who or how the school supervises/evaluates academic staff involved in the PU activities for their performance?</li> </ul> <p>Individual staff might be given responsibility to oversee the project, but the project is conducted in the name of the school, so there should be a monitoring mechanism from the school side also to keep its reputation maintained</p>	<ul style="list-style-type: none"> <li>- Consultancy activities are not part of the performance contracts because it is a separate contract and a mandatory for all staff.</li> <li>- However, this was contrary with what we were told in the first visit to the consultancy Bureau of UNR</li> <li>- The consultancy Bureau oversees all the activities to insure the quality of work and time flame on behalf of the UNR</li> </ul>
	<ul style="list-style-type: none"> <li>- What happens if an assigned academic staff cannot perform well on the PU activities, e.g. absence, delay of the work, poor performance etc.?</li> </ul>	<ul style="list-style-type: none"> <li>- He/she is not paid, the contract has to stipulate the performance modalities/ Contract conditions</li> </ul>
<b>Others</b>	<ul style="list-style-type: none"> <li>- What other challenges do you meet while working on income generating project?</li> <li>- How do you go about it?</li> </ul>	<ul style="list-style-type: none"> <li>- The Directorate of Administration and HR is not linked with income generating project. All related activities are dealt by the Consultancy Bureau which makes request for staff to, Faculties</li> </ul>

## 2. Procurement

Items	Questions	Responses
<b>Planning</b>	- Who makes a procurement plan for PU? And how does it get approved by the school?	- Consultancy done normally is not planned but any procurement for consultancy is approved by Senior management
	- Is a PU procurement plan differentiated from the school procurement plan?	- No procurement plan since they can not elaborate what to be procured
	- How do you know/anticipate projects to be done for comprehensive procurement plan?	- It is not done
	- How do you procure materials for project or consultancy when it was not planned in procurement plan?	<ul style="list-style-type: none"> <li>- All materials are procured following procurement procedures after approved by senior management.</li> <li>- In most cases to avoid delays it is recommended to use frame work contract for one year.</li> <li>- Also in case both parties agreed , the client will provide material in case needed and pay service fees to the consultancy Bureau</li> </ul>
<b>Contract</b>	- How do you manage contract between production unit (as contractor) and client?	- Consultancy office manages contract
	- Who establishes statement of requirements for project or consultancy among PU and client?	- Consultancy office
<b>Operation</b>	- Who does procurement for production unit?	- UNR Procurement officer
	- How does PU facilitate procurement office in procurement process?	- Establishes statement of requirement, recommends for approval

	<ul style="list-style-type: none"> <li>- During project implementation some materials are required which were not predicted and are needed immediately, how do you avail this?</li> </ul>	<ul style="list-style-type: none"> <li>- handled based on procurement law</li> </ul>
<b>Others</b>	<ul style="list-style-type: none"> <li>- What challenges do you meet while working on income generating project?</li> <li>- How do you go about it?</li> </ul>	<ul style="list-style-type: none"> <li>- delayed request from User department</li> <li>- Delay to supply by supplier</li> <li>- Procure un planned materials is contrary to the law</li> <li>- Loss of project due to failure to approve by the senior management</li> </ul>

### 3. Finance

Items	Questions	Responses
<b>Planning</b>	- Who makes a budget plan for PU? And how does it get approved by the school?	- At UNRC consultancy bureau the Unit prepare its own budget and present it to VRAF (Vice Rector in charge of Finance and Administration) for approve and the budget is financed after analysis it revenues and expenditure.
	- Is a PU budget plan differentiated from the school budget plan?	- The budget it is different from school budget, but they do make their own budget and present it to school financing it.
	- How do you secure budget for PU when it was not planned in the budget plan?  e.g. when the school has to borne additional material fees/ salaries for workers by itself (i.e. outside of the contract fees) due to some failures or accidents with which the school has a blame etc.	- For this case, they asked for a permission from the ministry to spent certain amount for a certain activity if the activity was not budgeted
<b>Budget</b>	- How do the school secure budget for PU activities?	- Once the bureau its budget has been approved by VRAF, then the amount is located to their sub-account for spending.  - However, the signatories are the UNR signatories
	- What kinds of items are funded by the project and others by the school itself?	- The school funds everything once the budget has been approved by VRAF  - For the projects which are independent are financed independently and no expenses imposed on UNR as there are under contract. Instead UNR is paid for services as indicated in the guideline.

	<ul style="list-style-type: none"> <li>- Does PU relate budget has clear demarcation from non-PU related budget? e.g. allowances, vehicles etc. some of them can be borne by the project contract, but PU itself needs to have its own running cost secured</li> </ul>	<ul style="list-style-type: none"> <li>- The NUR do hire a car to facilitate the movement of the staff from the consultancy bureau.( NUR uses Gorilland agency)</li> <li>- The consultancy bureau is focused much on income generation rather than community outreach and skills development there for there is no clear link with academic business but business motivated</li> <li>- Consultancy bureau members are paid under the movement budget and all the expenses are bone by the UNR but in case of the project all the expenses should be included to carry out the exercise</li> <li>- They have a department for community outreach(with planed activities and voluntary activities and no payment for such activities)</li> </ul>
<b>Responsibilities</b>	<ul style="list-style-type: none"> <li>- What are responsibilities that in your hand to facilitate PU day to day activities (biding, tax clearance etc to meeting the deadline)</li> </ul>	<ul style="list-style-type: none"> <li>- Consultancy Bureau does execute the tax issues on their own</li> <li>- Monthly report are made by the bureau (Income report)</li> <li>- Income and expenditure report (Status)</li> <li>- Make invoice and copy to the VRAF</li> <li>- Curry out direct projects and projects brought by teacher</li> </ul>
	<ul style="list-style-type: none"> <li>- Who deals with PU payments, taxation, clearance, taxes declaring etc</li> </ul>	<ul style="list-style-type: none"> <li>- Consultancy Bureau and VRAF.</li> </ul>

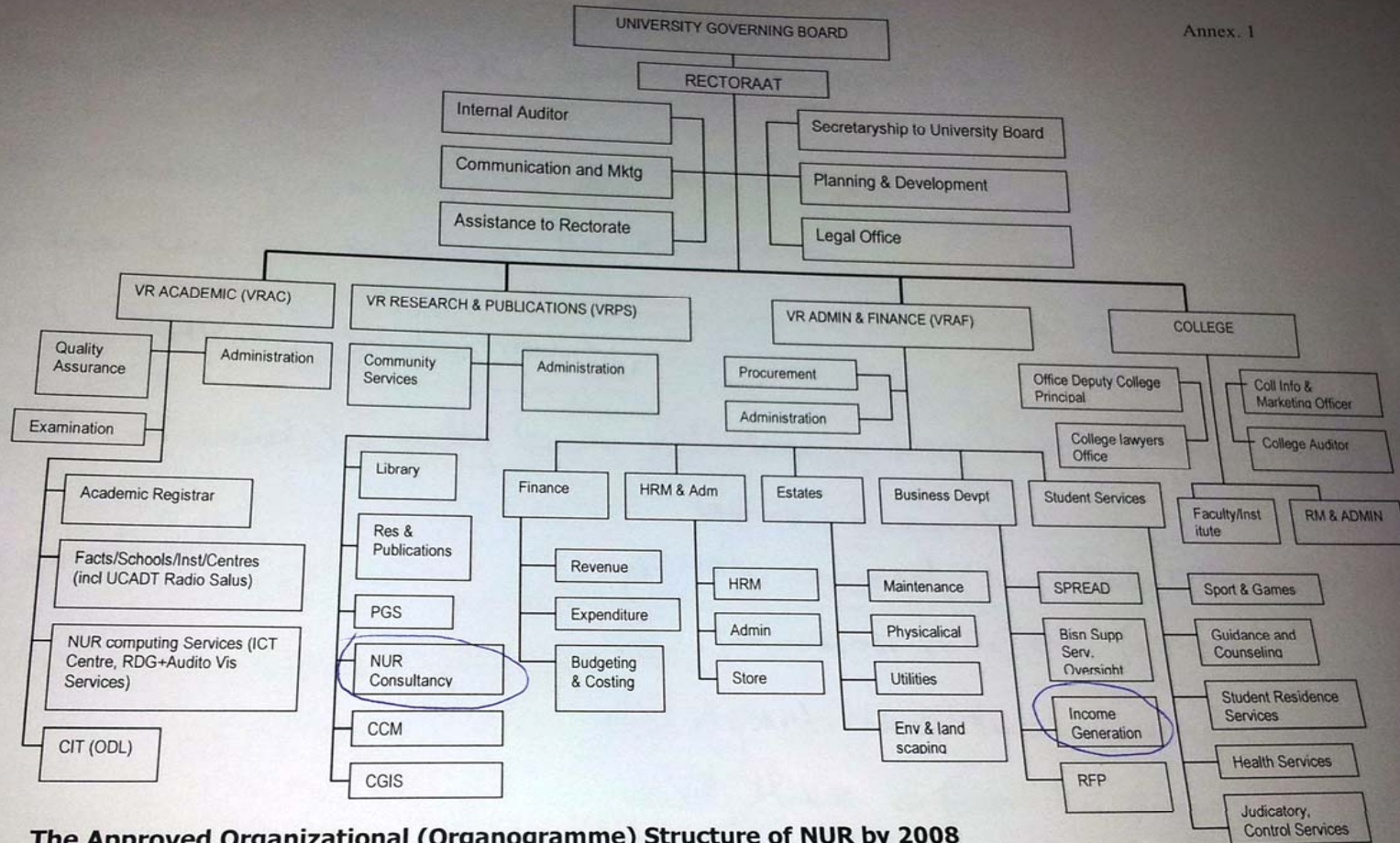
<b>Operation</b>	<ul style="list-style-type: none"> <li>- Who approves the spending of income generating activities?</li> <li>- During project implementation some budgets are required which were not predicted and are needed immediately, how do you avail this?</li> </ul>	<ul style="list-style-type: none"> <li>- VRAF and Director of Finance approve the spending of Funds</li> <li>- Petty can be used and requested from the UNR petty casher but for other spending must be in the project line and are under the contract conditions</li> </ul>
<b>Petty cash</b>	<ul style="list-style-type: none"> <li>- Do you have petty cash for PU activities?</li> <li>- What are the procedure involved</li> <li>- How do you get your petty cash for PU, is from recurring budget?</li> </ul>	<ul style="list-style-type: none"> <li>- Consultancy Bureau, doesn't own their own petty cash due to the fact that they don't stay far from the school and the reverse is true on this statement.</li> </ul>
<b>Reporting</b>	<ul style="list-style-type: none"> <li>- How do you incorporate income generated in the financial report to be sent to the ministry?</li> <li>- How do you plan and budget for income generating activities?</li> </ul>	<ul style="list-style-type: none"> <li>- The income generated from the consultancy Bureau is combined together with the other income generated from the school and get presented to MINECOFIN</li> </ul>
<b>Others</b>	<ul style="list-style-type: none"> <li>- What challenges do you meet while working on income generating project?</li> <li>- How do you go about it?</li> </ul>	<ul style="list-style-type: none"> <li>- The challenges they meet is that the bureau can't operate like an independent company; it has to comply with the Government procedures.</li> <li>- They do loose project as they cannot meet the deadline</li> <li>- Loose of maximum profit as there should be a surd party to supply the materials</li> <li>- Delays in execution of project as they need approval by the management</li> <li>- Delays in payments to some extent as each office will be taking time in verifying the document trying to understand them</li> <li>- Policy is the backbone of all the consultancy activities and the management plays a big role in facilitating the bureau to meet the deadlines.</li> </ul>



#### 4. Other issues

<b>Transportation/Movements</b>	<ul style="list-style-type: none"><li>- How PU activities assisted in transportation to meet their deadline/ submission of proposal, bids, or in case of urgent case in a project etc</li></ul>	<ul style="list-style-type: none"><li>- The school hires cars to facilitate the transportation for the bureau to meet their demands.</li><li>- UNR also have a number of cars which can be used in case needed. For number of project implementation, instead of hireling car for a consultant they do buy the car and when the project end, the car becomes an asset for UNR and in the end transportation is not problem for the bureau and UNR at large.</li><li>- Acceding to UNR structure, consultancy bureau is under Vice Rector Research and publication which has 8 units and it is among the 8 unites</li><li>- Vice rector Admin and finance has number of unities under his or her administration in which Income generation is part of the unit Ref. to the UNR structure.</li></ul>
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## Structure of NUR



**The Approved Organizational (Organogramme) Structure of NUR by 2008**

## **Minutes of KIST Company Visit**

### **1. Date and Time**

11:00 am – 12:30 am, Friday, October 18th, 2013,

### **2. Place**

KIST Campus

### **3. Interviewee**

Mr. ZIMULINDA Francis, Director of KIST Consulting Company/Vice-Dean of the Faculty of Engineering, KIST

### **4. TCT team**

ABAYISENGA Emile, VPAC

KAYISIME Nzaramba, VPAF

KAMANZI Emmanuel, Head of Production Unit

NSENGIYUMVA Job, Internal Auditor

TATSUMI Aragaki, JICA Expert

KONDO Nana, JICA Expert (Minutes)

### **5. Information collected**

The TCT team visited the KIST Consulting Company in order to understand the nature of their services and its operations. The collected information is as follows.

#### **1. Initial stage of the KIST Company**

- The company was established in 2011. Initially, KIST prepared 183 million RWF as initial capital to start up the KIST Company. Nonetheless, KIST was not able to transfer this fund to the company account as it was a violation of public policy. The KIST Company, consequently, started its operation without having any initial capital.
- Instead, KIST supported the company by providing materials, consumables, KIST facilities (e.g. the whole meat processing plant was given to the company), KIST staff, KIST name etc., all free of charge.
- At the beginning, there was 3 staff in the company, namely, director of the company, acting managing director, and accountant. Although the acting managing director and the accountant were hired by the company, their salaries were paid by KIST directly. This payment of salaries from KIST to company employees, however, discontinued later due to the audit comments.
- The company started its business by selling cook stoves and meat processing products. The company could sell the products without much difficulty, since they used the KIST “name”. The company earned 13 million RWF in the first year and the second year 60 million (without the salaries paid to the director of the company). By using the income generated by those activities, the company gradually became more independent from KIST, procuring required materials and hiring workers by itself.

## 2. Operational structure of the KIST Company

- The KIST Company has the following 4 permanent staff. Contract staff is also hired on a project bases.
  - Director of the company
  - Accountant
  - Administrative assistant
  - Officers in charge of tenders
- Director of the company is having a dual task of being a lecturer at the faculty of engineering, and the director of the company. Dual task is made possible as KIST reduced his workload by 50 percent. The other half of the time is used for company activities. The salary, however, is paid only by KIST. Though receiving a small portion of representation fees, he is not getting any salaries from the company.
- Auditor of the company is KIST internal auditor.
- Currently, there is no Board of Directors of the company. The KIST Board of Directors is acting as the Board of Directors for the company. No regular reporting is made to the KIST Board of Directors. The company makes a report only when it is required.

## 3. The relationship between the KIST Company and KIST

- The company has an MOU with KIST, which regulates the relationship between the two parties. The current MOU was signed for 2 years, which is in operation from 2011. The revision will be made after the completion of the signed MOU period.
- The company pays KIST, according to the MOU, for the usage of KIST facilities, such as labs and conference rooms, electricity and others, which is defined as the 38% of the net profit. Other than the 38 % net profit, the KIST Company cannot transfer money to KIST directly. The share of KIST, therefore, is only the value paid for the facility usages. KIST then uses the 38 % net profit, which is now KIST income, for the salary top-up of its staff and other KIST expenditures.
- Though not written in the MOU, the KIST Company and KIST have a mutual understanding to avoid competition with one another. For instance, if there is a tender, the Company participates in only for the ones KIST does not bid. They determine which party to take on a certain business according to the potential productiveness in terms of income. Since the company is subject to pay cooperate tax, i.e. 30% of the total income, and 18% needs to be added for any tender, KIST as an institution sometimes has more advantage to conduct a business. The KIST Company acts as one of the sources of income for KIST but not the only one.

## 4. Implementation of a company project

- The company firstly participates in a tender and selects staff from KIST to be involved in the project. If the company cannot find a suitable person within KIST, then the company will outsource a project by hiring external experts.
- The director of the company directly selects and determines, in consultation with the HOD, staff to be involved in a particular project, i.e. the department is not involved in the selection, so that the company can work only with competent staff.

The selected staff then needs to inform the HOD and gets an approval for the work to be carried out outside of his/her workload. After acquiring an approval, the selected staff will sign a contract with the company. The department is also not involved in the implementation of a company project.

- The net profit of the company is shared half by the company and the individual staff (sometimes a group of individuals) involved.

#### 5. Production Unit within KIST

- KIST-CITT (Center for Innovation and Technology Transfer) used to be a Production Unit of KIST, and then later replaced by the company. The company took over the production (sales), and also the consultancy works of KIST.
- Though the production (sales) within KIST institution does not exist anymore, some functions of PU, such as prototype development, are still conducted by the institution, and the company works more on commercialization of the developed products.

#### 6. Benefits

- The company can bid in a tender.
- The company can ease the process of procurement. (The procurement issue was the main reason for the establishment of the KIST Company).

#### 7. Challenges

- It is difficult to sustain a business since the market demand can change all the time. Different kinds of experiences and qualifications are needed to make the business running.
- A company cannot rely on tender business. In case of the KIST Company, the development of reliable product was very important.

#### 8. Advice for TCT

- Starting up of a company is not easy. TCT should not make a same mistake as KIST. When starting a company, TCT should think how much it can really gain by analyzing how many tenders the company has to win in order to generate income, and how much investment it has to make in terms of time and resources, e.g. facilities, salaries of the employees, book makings, reporting etc.
- A company needs to have a clear business plan, procedure manuals, an article of association, and other guiding documents. A market survey needs to be conducted before developing a business plan. A company also needs to be aware of the regulations of business operations.

## **Minutes of Meeting: RDB**

### **1. Date and Time**

11:00 am – 12:00 am, Friday, October 25th, 2013,

### **2. Place**

Human Capital & Institutional Development, RDB

### **3. Interviewee**

Mr. Apollo Munanura, Head of Human Capital & Institutional Development, RDB

### **4. TCT team**

TATSUMI Aragaki, JICA Expert

KONDO Nana, JICA Expert(Minutes)

NIYITEGEKA Silas, JICA TCT National Staff

### **5. Information collected**

The TCT team visited RDB and discussed the issues regarding teaching institutions setting up a private company by using public funds/resources to conduct business. Views shared by RDB are as follows;

- Originally, the guidance was given to institutions to generate its own income through consultancy and research, using their technical skills. It was not a cabinet decision, but general orientations were provided by National Council for Higher Education (HEC), RDB, Ministry of Trade and Industry, Ministry of Public Service and Labour, and other concerned organizations.
- There was, however, no single “formula” suggested to institutions as to “how” they should generate income. They were encouraged to find a suitable way to generate income, using common sense. They should empower themselves, for instance, by reducing the workloads of engineers etc.
- There is no way institutions should use public money/resources to start up a company, even if there is a problem of procurement. It can give unfair advantages to public institutions. Institution needs to find a way to compete in the market using their technical skills as their advantage.
- Budget should be used for what it is allocated for. If they have to use their budget in a business it should be allowed by the government to do so.
- If institution needs to buy some equipment or facilities to start their business (not as a company), the government can approve, since the government has to support institutions’ efforts to generate their own income. For instance, IPRC-Kigali IT laboratory is built by government budget but being used for private trainings as well, which is allowed. Agricultural and veterinary school of ISAE (College of Agriculture, Animal Sciences and Veterinary Medicine), on the other hand, has freeland and 20 cows bought by public funds. They use the cows for training and sell the milk for income generation.

## **Minutes of Meeting: PSF**

### **1. Date and Time**

11:00 am – 12:00 am, Monday, October 28th, 2013,

### **2. Place**

PSF Office

### **3. Interviewee**

Mr. Antoine Manzi, Director of Advocacy, Trade and Labour Relations

### **4. TCT team**

EMMANUEL Kamanzi, Head of PU

ARAGAKI Tatsumi, JICA Expert

KONDO Nana, JICA Expert(Minutes)

NIYITEGEKA Silas, JICA TCT National Staff

### **5. Information collected**

The TCT team explained the current tasks faced by teaching institutions to generate its own income, and shared the ideas of joint ventures as one of the means to achieve such goals. Mr. Manzi shared his views on the issue as follows;

#### **1. The purpose of PU for teaching institutions**

- The PU should work as part of education system. If an institution sets up a company to operate PU, it cannot be beneficial for education purpose.
- If PU is part of the education system, students and teachers can be involved in the activity fully, and learn, for instance, how their products are perceived by external people, how to compete in the market, etc., which will help them to gain more practical experiences.
- If PU is operated through a company, PU will be detached from a school, and it will be more difficult to combine the business with education, as the company will aim at profit making rather than skills oriented.

#### **2. Option to open up a company**

- Company can complicate many things as it has to comply with a number of business regulations.
- Profitability is also questionable. For PU to be sustainable, it should minimize any kinds of the cost, yet as a company, everything you earn will be taxed by 30%. Since PU products are already cheaper than market products, institutions already have an advantage in attracting people, even without a company.

#### **3. Joint ventures**

- Joint venture should focus on knowledge transfer in order for a business to be beneficial to the education. However, this needs to be sought of as being in joint venture with business. Company will also bring in a number of regulations and challenges in terms of profit and losses .

- Since the management of joint venture seems difficult, if TCT is to explore the possibility, it should start with a small number of companies.
- TCT needs to continue working hard so that it could come up with a model for all TVET institution which can combine business and education in a sustainable manner. This will help government in terms of practical skills for private sector and the business in general



Annex 4 :  
Production Unit Workshop Documents

## TCT Production Unit Guideline Workshop with the TCT management team

11th June 2013  
PU members

### Contents

- ▶ Experience of Other Schools
- ▶ Discussion:
  - ▶ Basic structure of the PU
  - ▶ Incentive generation
  - ▶ Utilization of institution facilities/equipment
  - ▶ The scope of PU responsible activities

Before going in to the workshop...

### Key points to be reminded

- ▶ The main purpose of the PU
  - ▶ The PU is established primarily for capacity development of TCT, not only for income generation
- ▶ Scope of activities
  - ▶ Non-income generating activities, such as community outreach projects are also regarded as PU activities
- ▶ The responsibilities as an educational institution
  - ▶ Areas of activity: TCT PU activities should not hinder the Rwandan private industry, but support its growth
  - ▶ Operation: If TCT PU should have a clear regulations on how to utilize the public resources

### Experiences of other institutions

#### I. Independent company model

- ▶ Schools: IPRC-Kigali, KIE, SFB
- ▶ Company totally independent from the institution
- ▶ Highly business oriented

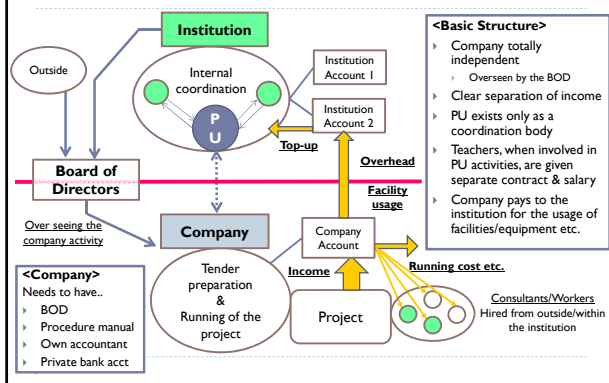
#### II. Half independent company model

- ▶ Schools: VTC Mpanda
- ▶ Company exists within the institution

#### III. Without a company model

- ▶ Schools: NUR, (VTC Kavumu)
- ▶ No company exists

### I. Independent Company Model (IPRC-K, KIE, SFB)



### I. Independent Company Model (IPRC-K, KIE, SFB)

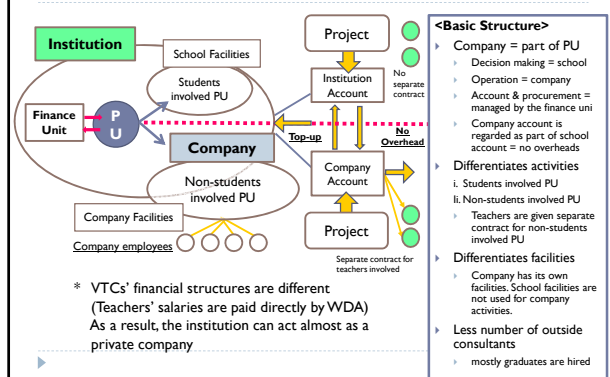
#### <Advantage> = Efficiency

- ▶ No procurement problem
- ▶ No "workload" problem
  - ▶ The company makes a separate contract with a teacher, and pay salaries according to the contract = keeping incentive
- ▶ Clear procedures for utilizing institution's facilities

#### <Disadvantage>

- ▶ No reflection on teaching quality
- ▶ Lacking responsibility as an educational institution?
  - ▶ Conduct any business out side of their areas of specialization = no clear selection process
  - ▶ Hiring many consultants from outside

## II. Half Independent Company Model (VTC Mpanda)



## II. Half business oriented Model

### <Advantage>

- ▶ Avoiding mismanagement of the company
- ▶ PU activities are related to Mpanda's area of specializations
- ▶ Students are given practical experiences through PU
- ▶ No "workload" problem

### <Disadvantage>

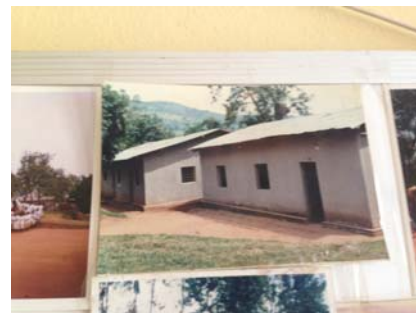
- ▶ Company's independence can be questionable
- ▶ Students' involvement is limited to certain activities
- ▶ PU activities concentrate on certain areas of expertise
- ▶ Reflection on teaching quality is still limited
- ▶ Financial environment is quite different from TCT

## Lessons to be learned from VTC Mpanda

- ▶ Utilization of PU for providing students practical lessons
- ▶ Even when there is no PU project, the school provides same quality of lessons using school environment as their learning material
- ▶ The school itself is benefited from its own technical skills, enabling students to gain deeper understanding of the skills as well as its business implications

## Lessons to be learned from VTC Mpanda

VTC Mpanda Before



## Lessons to be learned from VTC Mpanda

VTC Mpanda Today



## Lessons to be learned from VTC Mpanda

VTC Mpanda Today



### Lessons to be learned from VTC Mpanda

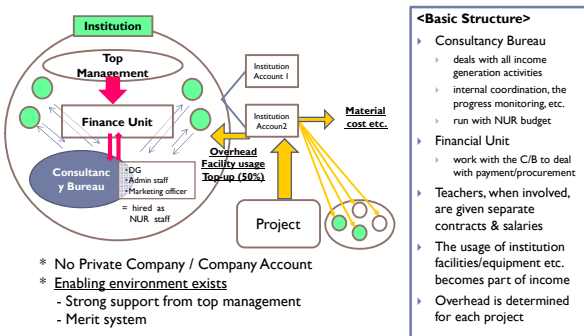
VTC Mpanda Today



### Lessons to be learned from VTC Mpanda

- ▶ Utilization of PU for providing students practical lessons
- ▶ Even when there is no PU project, the school provides same quality of lessons using school environment as their learning material
- ▶ The school itself is benefited from its own technical skills, enabling students to gain deeper understanding of the skills as well as its business implications
- ▶ Can it be done at TCT also?
  - ▶ Manufacturing of goods
  - ▶ Installation of facilities
  - ▶ PC refurbishment

### III. Without a Company Model (NUR)



### III. Without a Company Model

#### <Advantage>

- ▶ Enabling environment
  - ▶ No procurement problem
- ▶ Merit system (money and promotion)
- ▶ No workload problem
- ▶ Clear procedures for utilizing institution's facilities
- ▶ Area of activities = related to the specialization of NUR
  - ▶ No mismanagement of income generation activities

#### <Disadvantage>

- ▶ Reflection on teaching is still limited
- ▶ Requires effort to make an "enabling" environment

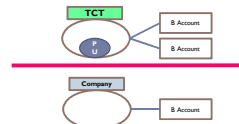
### Discussion:

- ▶ Basic structure of the PU
- ▶ Incentive generation
- ▶ Utilization of institution facilities/equipment
- ▶ The scope of PU responsible activities

### Discussion:

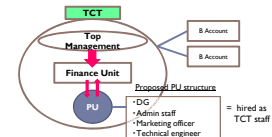
#### Basic Structure of PU (and Company)

##### Option1: With Company



- ▶ PU only acts as a coordination unit
- ▶ Company has total independence and deals with the whole process of PU activities
- ▶ Board of directors needs to be established
- ▶ Company needs to recruit permanent staff
  - ▶ Company head, Accountant etc.
- ▶ TCT finance unit does not deal with any company procurement issues
- ▶ Separate contracts are made when TCT staff are involved in the company activities = salary

##### Option2: Without Company



- ▶ PU deals with the whole process of PU activities
- ▶ The support of top-management is crucial
- ▶ Financial unit, together with the PU admin staff, deals with the financial issues of PU activities
- ▶ No need to establish a separate account
- ▶ Need staff to deal with PU management issues
- ▶ Teachers' involvement
  - ▶ Option 1: Non-pay (PU = part of responsibility)
  - ▶ Option 2: With pay (with separate contract)

### Discussion: Incentive generation

**Problem:** Teachers are not always motivated to be involved in PU activities. How can we generate their incentives?

**Possible Options:**

- ▶ **Contract based salary**
  - ▶ separate from the teaching salary
- ▶ **Merit System**
  - ▶ Linkage with performance contract, promotion system
- ▶ **Research topics**
  - ▶ Support PU activities to be used as an academic research topic
- ▶ **Project introduction reward**
  - ▶ Certain reward can be paid to anybody who brought a project
  - ▶ Anybody can be eligible, establishing an enabling environment for PU

NB: Not all PU activities are for income generation, so the money should be paid from the PU account how do we go about it?



### Discussion:

#### Utilization of institution facilities/equipment

**Problem:** Using of TCT owned facilities/equipment for PU should not hinder class room activities. Also, utilization of public resources (=TCT facilities) for income generation should be carefully managed.

**What needs to be done:**

- ▶ **Facility/equipment borrowing procedure**
  - ▶ Procedure to make sure the availability of TCT facility/equipment
  - ▶ In order to do this, each department needs to create a facility/equipment utilization plan
- ▶ **Cost list**
  - ▶ A cost list needs to be created as TCT regulation
  - ▶ According to the cost list, PU makes a "fair" financial proposal which includes necessary charges for the facility/equipment usage



### Discussion: Scope of PU responsible activities

▶ **Examples of TCT external activities**

- ▶ Short-term IT trainings at ICT Kigali Center
- ▶ PC refurbishing projects, PC refurbishing TOT
- ▶ Briquette making trainings
- ▶ Various community outreach projects

▶ **Where to draw a line?**

▶ **Suggestion:**

**PU:** Any external activities which requires TCT's technical input  
Including ICT Kigali

**Non-PU:** Other external activities

- ▶ In order to have a comprehensive understanding, as well as strategic view of TCT external activities, it is important to have a unit that oversees all the external activities.



## TCT Production Unit Consideration for its structure and company

September 2013  
PU members

## Experience of other institutions

<Current Practice> KIST, IPRC-Kigali, KIE, SFB

- Opening up a company using public funds as an initial capital
- Providing public resources/facilities free of charge to run a business

<Problems>

- Not clear whether the practice is legally acceptable
- Giving unfair advantages to public institutions over private business
- Taking away business opportunities from private business, contrary to their core mandate

<Current rules>

- No regulations existing
- WDA is preparing to make a guideline, in which a company operation can be disapproved as a practice
- RDB, PSF giving concerns over the current practices

## Company

Pros	Cons
<b>Operation</b> <ul style="list-style-type: none"> <li>• Easier <u>procurement</u></li> <li>• Can bid in <u>tender</u></li> </ul>	<b>Operation</b> <ul style="list-style-type: none"> <li>• Complicated business procedures</li> <li>• Complicated procedures between TCT and the company</li> <li>• Requires flexibility (cannot plan ahead)</li> </ul>
<b>Profitability</b> <ul style="list-style-type: none"> <li>• Possibility of a big business</li> </ul>	<b>Profitability</b> <ul style="list-style-type: none"> <li>• 30% tax</li> <li>• Running costs</li> <li>• Difficult to predict market trends</li> </ul>
<b>Benefits to Education</b>	<b>Benefits to education</b> <ul style="list-style-type: none"> <li>• More outsourcing, less skills actually used by TCT staff</li> </ul>

## Roles of teaching institutions

1. Teaching of the professions = Education
2. Fostering of research = Research & Development
3. Social contribution based on the professions  
= Community outreach

- Business is not the core mandate
- Income generation has to be in line with the core mandate
- It should focus its business on “education” and “consultancy”
- Sales of production as a result of “education” is justifiable

## Main Problems faced by TCT PU

Problems faced	Causes	Possible solutions
<b>Slow progress &amp; delays</b> <ul style="list-style-type: none"> <li>• Lack of dept. support</li> <li>• Unavailability of staff</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of clear planning</li> <li>• Lack of monitoring</li> <li>• Lack of coordination with departments</li> <li>• Lack of motivation</li> </ul>	<b>* Strong Planning</b> <ul style="list-style-type: none"> <li>– PU planning should be in line with dept. plans as well as school admin plans</li> </ul>
<b>Lack of flexibility</b> <ul style="list-style-type: none"> <li>• Procurement</li> <li>• Transportation</li> <li>• Documents</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of clear planning</li> <li>• Lack of coordination with administrative units</li> </ul>	<b>* Involvement of depts</b> <ul style="list-style-type: none"> <li>– Depts can be in charge of selection, implementation and monitoring of a project</li> </ul>
<b>Cost effectiveness</b> <ul style="list-style-type: none"> <li>• Size of a project</li> <li>• Number of projects</li> <li>• Small amounts of procurement bringing total costs high</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of strategic plan</li> <li>• Lack of research</li> </ul>	<b>* Incentive Policy</b> <ul style="list-style-type: none"> <li>– Under preparation</li> </ul> <b>* Selection of Activities</b> <ul style="list-style-type: none"> <li>– Should select an activity strategically, recognizing both weakness &amp; comparative advantage of TCT</li> </ul>
		<b>* Means of Operation</b> <ul style="list-style-type: none"> <li>– Should think of effective means of PU operation to overcome the weakness</li> </ul>

Solutions can be found without having a company!!

## Way forward for TCT PU

TCT can become a pioneer!!

1. Providing “unique” training services that only TCT can provide
2. Synchronizing “production” and “practical lessons”
3. Joint ventures with entrepreneurs

## Way forward for TCT PU ①

## Selection of Activities

**Strengthening “Training Services”**

## &lt;Advantage&gt;

- Stable income to build the base for PU
- Using TCT’s comparative advantage
- Can plan ahead, doesn’t require flexibility

## &lt;Challenges&gt;

- Curriculum development
- Need to strengthen marketing in order to attract more students



## Way forward for TCT PU ②

## Selection of Activities/Mean of Operation

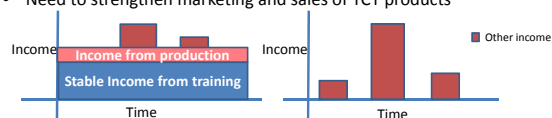
**Production through “Practical Lessons”**

## &lt;Advantage&gt;

- Improve the quality of education for students
- Can plan ahead, doesn’t require flexibility
- Stable income to sustain school operations
- Using TCT’s comparative advantage

## &lt;Challenges&gt;

- Curriculum change      • Initial budget
- Need to strengthen marketing and sales of TCT products



## Way forward for TCT PU ③

## Means of Operation

**Service Provision through “Joint Ventures”**

## &lt;Advantage&gt;

- Procurement can be done by a partner company
- Workers/ technicians can be hired by a partner company
- TCT can support a small business, including TCT graduates, gain experiences and grow their skills = incubation support

## &lt;Challenges&gt;

- Need to search for partners
- Management of company and the school relations

TCT Research, Development and Production Unit (RDPU)  
General Principles & Plan of Operations

November 7th, 2013  
Director of DRDP

**Today's Objectives**

1. To review the general principals of RDPU
2. To share RDPU experiences & challenges
3. To agree on operation plans of RDPU

→ Based on 1 & 3, RDPU guideline will be developed

**1. General principles: RDPU Mission**

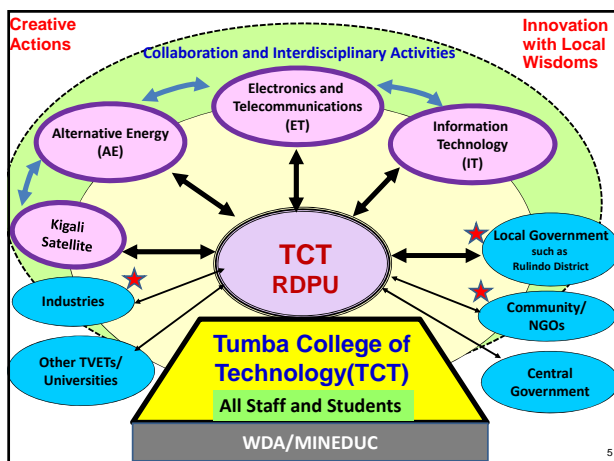
The primal purpose of the RDPU is to establish a continuous capacity development system within TCT for the provision of "practical" technical education. Through RDPU activities, TCT staff (academic and administrative) are given opportunities to improve their practical skills, become updated with the latest/appropriate technologies, and gain better understandings of the industrial and social needs. Accordingly, with TCT staff utilizing the newly acquired skills and technologies in their classrooms and in school management, the RDPU activities will lead to a strengthening of the "practice-oriented" education at TCT.

In this understanding, the RDPU is established and operated in a manner which strengthens the TCT's capacity in terms of TCT staff's practical skills and experience.

**1. General principles: RDPU Mission**

**TCT RDPU is...**

- a continuous capacity development system established within TCT
- to provide an opportunity to;
  - improve practical skills
  - learn the latest/appropriate technologies
  - gain understandings of the industrial & social needs
- to strengthen TCT's "practice-oriented" education



**1. General principles: Areas of RDPU activities**

- RDPU should be focusing on activities that TCT can offer its technical advantages
- TCT RDPU tries to operate in a manner that supports the development of the respected industry



**Note: Core mandate of teaching institutions**

1. Teaching of the professions = Education
  2. Fostering of research = Research & Development
  3. Social contribution based on the professions  
= Community outreach
- Income generation has to be in line with the core mandate
  - It should focus its business on “education” and “consultancy”
  - Sales of production as a result of “education” is justifiable

**1. General principles: Types of PU activities**

Examples:

- R&D
- Consultancy
- Production
- Trainings
- Community Outreach

**Note: PU and Company distinctions**

	PU	Company
Core Principle	<ul style="list-style-type: none"> <li>• Skills development &gt; IG</li> <li>• Utilize TCT's technical advantage</li> </ul>	<ul style="list-style-type: none"> <li>• Income generation &gt; SD</li> <li>• Utilize TCT's technical advantage</li> </ul>
Types of activities	<ul style="list-style-type: none"> <li>• Planned activities</li> <li>• Projects that require less flexibilities/procurements</li> <li>• Both income generating &amp; non-income generating activities</li> </ul>	<ul style="list-style-type: none"> <li>• Unexpected activities</li> <li>• Tender projects</li> <li>• Income generating activities</li> </ul>
Operation principle	<ul style="list-style-type: none"> <li>• Utilize TCT staff/resources</li> </ul>	<ul style="list-style-type: none"> <li>• Utilize outsourced workers</li> <li>• Utilize TCT staff where possible</li> </ul>

**2. PU Experiences & Challenges****Conducted activities in 2013**

- IT
  - PC maintenance proposal
  - Leave Management System Development
  - IT Driving Exam proposal
  - Kinihira school IT lessons
- ET
  - CCTV maintenance proposal
  - Sensor application proposal
  - Kinihira school robot presentations
- AE
  - Solar Water Heater production & sales
  - Insect Trap production & sales
  - Briquette training proposal
  - Nyakiriba project

**2. PU Experiences & Challenges: Problem Analysis**

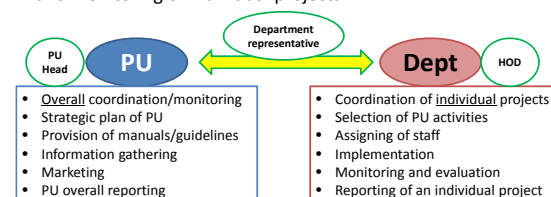
Problems faced	Causes	Possible solutions
<b>Slow progress &amp; delays</b> <ul style="list-style-type: none"> <li>• Lack of dept. support</li> <li>• Unavailability of staff</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of clear planning</li> <li>• Lack of monitoring</li> <li>• Lack of coordination with departments</li> <li>• Lack of motivation</li> </ul>	<ul style="list-style-type: none"> <li>* <b>Strong Planning</b> <ul style="list-style-type: none"> <li>– PU planning should be in line with dept. plans as well as school admin plans</li> </ul> </li> <li>* <b>Involvement of depts</b> <ul style="list-style-type: none"> <li>– Depts can be in charge of selection, implementation and monitoring of a project</li> </ul> </li> </ul>
<b>Lack of flexibility</b> <ul style="list-style-type: none"> <li>• Procurement</li> <li>• Transportation</li> <li>• Document preparations</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of clear planning</li> <li>• Rigid procedures</li> <li>• Lack of RDPU admin support structure/policy</li> </ul>	<ul style="list-style-type: none"> <li>* <b>Incentive Policy</b> <ul style="list-style-type: none"> <li>– Under preparation</li> </ul> </li> <li>* <b>Selection of Activities</b> <ul style="list-style-type: none"> <li>– Should select an activity strategically, recognizing both weakness &amp; comparative advantage of TCT</li> </ul> </li> </ul>
<b>Inefficient utilization of resources</b> <ul style="list-style-type: none"> <li>• Project selection</li> <li>• Small amounts of procurement bringing total costs high</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of strategic plan</li> <li>• Lack of research</li> </ul>	<ul style="list-style-type: none"> <li>* <b>Means of Operation</b> <ul style="list-style-type: none"> <li>– Should think of effective means of PU operation to overcome the weakness</li> </ul> </li> </ul>

**3. Way forward for TCT PU****Strong Planning**

- PU planning should be in line with department plans as well as school administrative plans

**Involvement of departments**

- Departments will be in charge of selection, implementation and monitoring of individual projects



### 3. Way forward for TCT PU

#### Incentive Policy

- Currently being prepared
- Applying workload balancing approach
- Encourage more staff, both academic and administrative staff, to be involved in PU activities
- Also to reduce the chances of delay

### 3. Way forward for TCT PU

#### Selection of activities

- Should select an activity strategically, recognizing both weakness & comparative advantage of TCT

#### Means of Operation

- Should think of effective means of PU operation to overcome the weakness

#### <Suggested approach> = To be a focus from next year

- ① Strengthening short-term training services
- ② Synchronizing “production” and “practical lessons”
- ③ Joint ventures with entrepreneurs

### 3. Way forward for TCT PU

#### ① Strengthening short-term “Training Services”

##### <Description>

- Provision of short-term training programs needs to be strengthened to build a stable income base for TCT DRDP

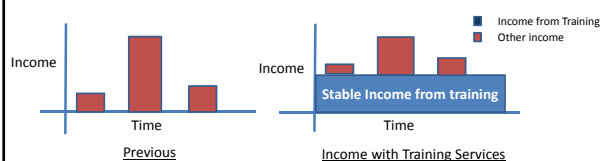
##### <Advantage>

- Can generate comparatively more stable income, less fluctuation
- Using TCT’s comparative advantage
- Can plan ahead, doesn’t require flexibility

##### <Challenges>

- Curriculum development
- Need to strengthen marketing in order to attract more students

### Importance of building a stable base



### 3. Way forward for TCT PU

#### ② Production through “Practical Lessons”

##### <Advantage>

- Improve the quality of education for students
- Can plan ahead, doesn’t require flexibility
- Stable income to sustain school operations
- Using TCT’s comparative advantage

##### <Challenges>

- Curriculum
- Need to strengthen marketing and sales of TCT products



### 3. Way forward for TCT PU

#### ③ Service Provision through “Joint Ventures”

##### <Advantage>

- Procurement can be done by a partner company
- Workers/ technicians can be hired by a partner company
- TCT can support a small business, including TCT graduates, gain experiences and grow their skills = incubation support

##### <Challenges>

- Need to search for partners
- Management of company and the school relations

Thank you for your attention!

Work plan/next tasks for the department shall  
be provided in the next session.

### RDPU: Current status

25.11.2013

#### Current RDPU working structure

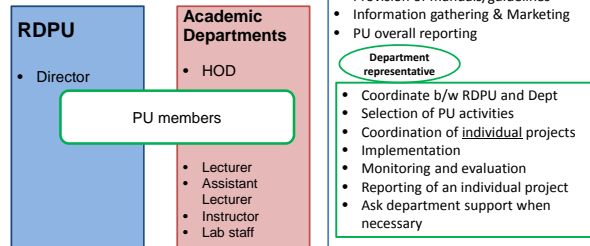
- 1 RDPU Director
  - in charge of management and overall coordination
- 4 Department Representatives = RDPU members
  - in charge of a project implementation and coordination with the respective department
  - All the RDPU members have teaching workloads

#### Challenges faced

- Slow Progress/Continuous Delays
  - Due to other teaching & departmental tasks RDPU members have, they cannot allocate sufficient time for RDPU activities, resulting in continuous delays of activities
  - RDPU has lost contracts due to this problem
- Lack of department support/ Unavailability of supporting staff
  - Actual implementation cannot be possible without departmental support. RDPU member cannot implement the whole project just by himself.
  - Some of the projects discontinued or faced continuous delays due to this problem

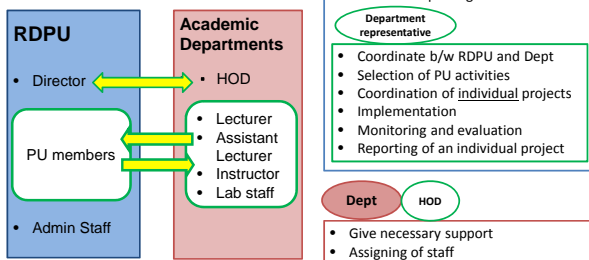
### Current Structure

- RDPU members have teaching workloads, and not fully involved in RDPU activities
- Department are not directly involved in PU activities



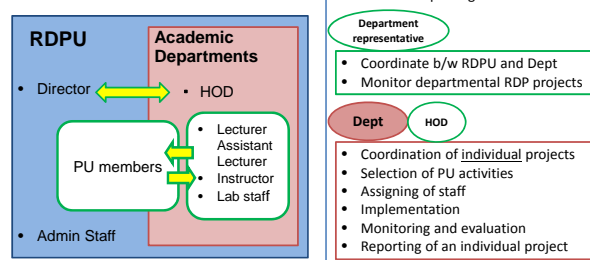
### Option 1: Place fully involved RDPU members

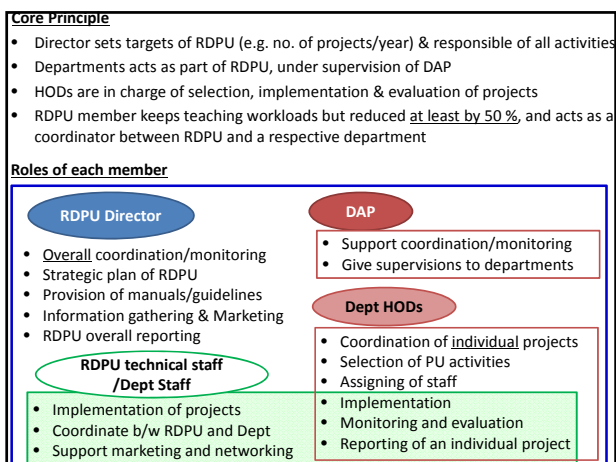
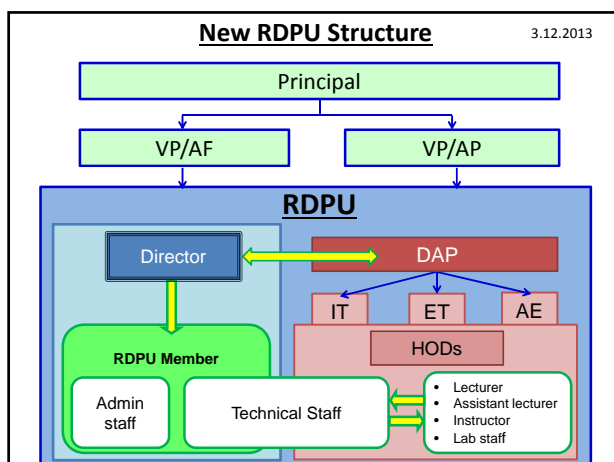
- RDPU members are exempt from any teaching workloads, and 100 % involve in RDPU activities
- Department gives necessary support, yet the responsibility of project implementation is given to RDPU member



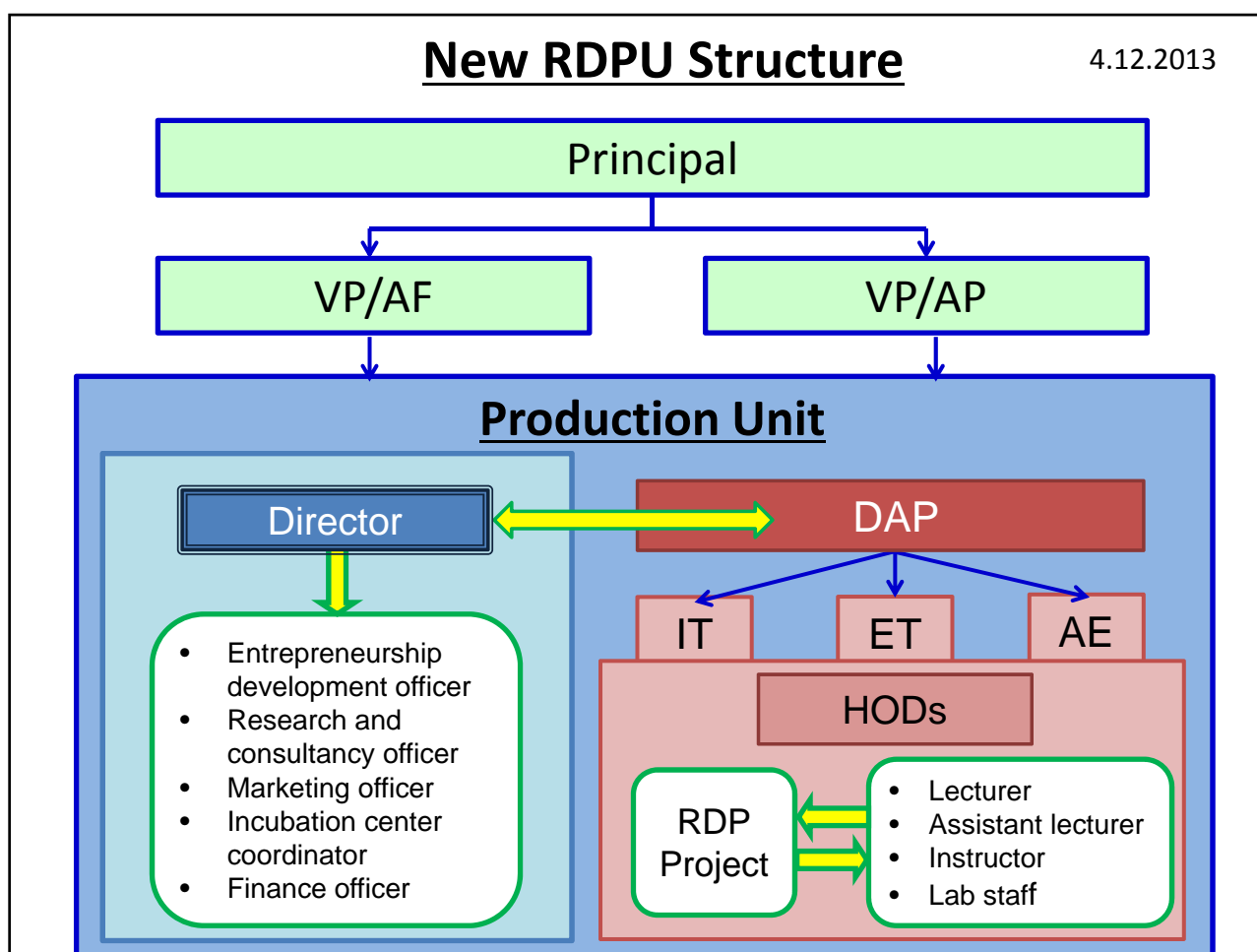
### Option 2: Increase the involvement of departments

- Departments acts as part of PU
- Department becomes in charge of selection, implementation and evaluation of projects
- RDPU member keeps teaching workloads, and acts as a coordinator between RDPU and dept





TOR of RDPU Member (draft)	
<b>1. Teaching Workload</b> (50 % = 22.5 working hours x 43 weeks)	
<ul style="list-style-type: none"> <li>• Teaching (9 hours of teaching per week for 24 weeks)</li> <li>• Preparation for teaching (9hours per week for 24 weeks)</li> <li>• Preparing, invigilating and making assessments (3 weeks per year)</li> <li>• Student contact (2.5 hours per week for 30 weeks)</li> <li>• Personal administration (0.5 per day for 43 weeks)</li> <li>• Networking (1.5 hours per week for 43 weeks)</li> <li>• General reading (3.5 hours per week for 43 weeks)</li> </ul>	
<b>2. RDPU Workload</b> (50 % = 22.5 working hours x 43 weeks)	
<ul style="list-style-type: none"> <li>• Coordinate b/t RDPU &amp; dept (2 hours/week)</li> <li>• Monitoring of dept'al RDPU projects (2hours/week)</li> <li>• Marketing and networking (2.5hours/week)</li> <li>• Implementation of individual projects (12hours/week)</li> <li>• Monitoring, evaluation of individual projects(2hrs/wk)</li> <li>• Report writing (2hours/week)</li> </ul>	<b>&lt;Indicators and Targets&gt;</b> <ul style="list-style-type: none"> <li>• No. of coordinated projects (5/year)</li> <li>• No. of individual projects (3/year)</li> <li>• No. of reports (3/year)</li> <li>• No. of new companies contacted (10/year)</li> </ul>



Annex 5 :  
Staff Incentive Policy

# **Staff Incentives Policy**

## **1. Purpose of the Policy**

This policy sets out the College's arrangements from 1<sup>st</sup> November 2013 for the payment of incentives to its staff. The policy is intended to encourage and recognize the effort involved in conducting activities which make an optimal contribution to realizing the College's mission and vision.

The policy uses Workload Balancing as a framework by which the College can review the appropriate deployment of all staff to ensure the optimal allocation of tasks. The detailed conditions and procedures are designed as follows.

## **2. Eligible Activities**

Any activities applied for a provision of incentive must be utilizing the existing skills and technical knowledge of the College. Eligible activities for this policy are divided into the following categories;

### **a. Profit making activities**

- Types of activities that relates specifically to income received directly by the College as a result of such work. This includes, for example, consultancy works in the areas of professional services, commercial short-term training course provisions, conferences and seminars by members of College staff, production & sales of TCT products, and others.

### **b. Community outreach activities**

- Non-profit making activities that are conducted to benefit a community or its institutions, including schools, cooperatives and others, in an effort to improve the quality of life for community residents. This includes, for example, distribution of TCT products, skills training provisions, skills exhibits and others.

### **c. Other activities useful to the College**

- Non-profit making activities that are conducted to improve the quality of facilities and the environment of the College itself. These activities are expected to reduce cost of buying goods and services that the college staffs are able to deliver using their know-how and expertise. This includes, for example, installation and maintenance of facilities based on TCT skills, development of internal software systems, and others.



### **3. Eligible Staff**

The policy applies to the following permanent staff only;

- a. Academic staff
- b. Administrative staff
- c. Support staff

Contract staffs are not eligible for the provision of incentives under this policy.

### **4. Incentive Recipients Category**

The Incentive Policy recognizes incentive recipients who fall into the following three categories;

- a. Initiator (1 person or more)
  - A staff member who brought the project idea or the information which initiated the commencement of the concerned project. The initiator can be any member of the permanent College staff, and does not necessarily have to be involved in the project implementation.
  - In case, a project is initiated by a department or the College itself, the project does not have an initiator, and therefore the share of incentives prepared for an initiator will be collected by the College.
- b. Project Manager (1 person)
  - A staff member who is responsible of the whole project design, implementation, monitoring and reporting.
  - Project Manager writes a project approval form and an incentive approval form with clear indications of within/above-fulltime workload of the working staff. Upon completion of the project, the project manager is also responsible of writing a completion report, and an incentive claim form for all the working staff.
- c. Working Staff (more than 1person)
  - Staff members who participate in the project implementation. Working Staff will contribute in the project according to the supervisions given by Project Manager.
  - If a project requires considerable support from administrative staff and/or support staff, for instance in preparation of official documents, procurement of necessary materials, etc., they can be also listed as working members of a project.

Depending on a project, the same member of staff can be listed on different categories of incentive recipient, for instance, an initiator can also become a project manager, and

a project manager can be a member of working staff if s/he also contributes in the physical work.

The percentage of incentives payable to each category of recipient varies as described in the section 6 Calculation of Incentives below.

## **5. Within/Above-fulltime Workload**

This Incentives Policy is applicable for activities undertaken “above fulltime” workload. Although the general procedure is the same for any activities within workload, no additional financial rewards are available for hours of activities conducted “within” workload.

Due to the differences in the nature of work between academic staff and administrative staff, different rules apply as described below.

### **<Academic Staff>**

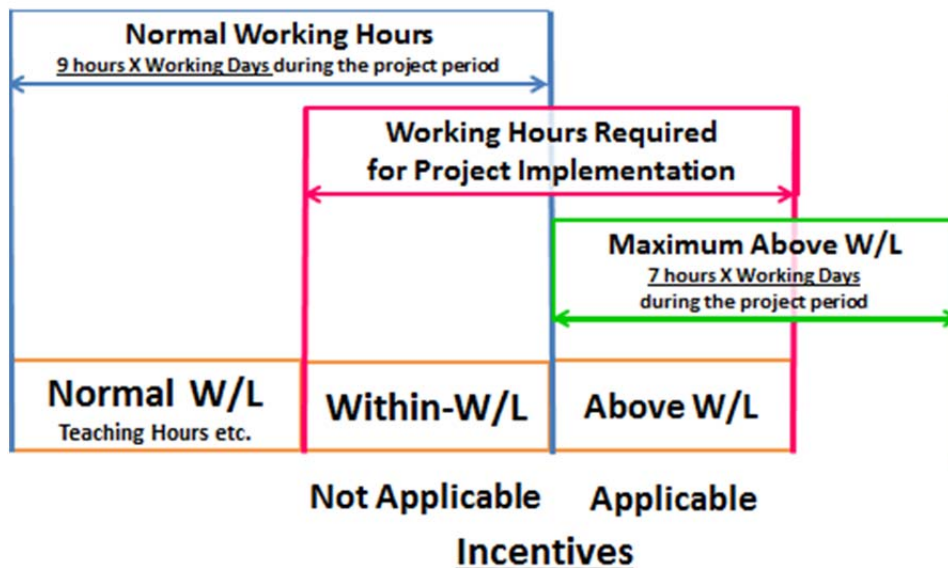
This policy uses “The Academic Staff Workload Calculation Guideline” as a criterion to measure the workload for academic staff. The two types of workloads are defined as follows;

#### **a. Within-workload**

- Workload that can be carried out within normal working hours (calculated by “working days” times “9hours per day”) during the project period. Within-workload is determined by removing normal workload, calculated according to “The Academic Staff Workload Calculation Guideline”, from the normal working hours of an incentive recipient in a given period of time.

#### **b. Above-fulltime workload**

- Activities that are conducted above normal working hours (9hours per day) during the project period. Above-fulltime workload is determined by removing within-workload from the working hours required for the implementation of a proposed project.
- The calculation of above-fulltime workload cannot exceed more than 7 hours per working day. If an incentive recipient is listed in another activity conducted in the same project period, working hours required for that project has to be also taken into account to calculate the acceptable above-fulltime workload.



**Figure 1. Within/Above-fulltime Workload**

<Administrative Staff>

- a. Within-workload
  - Workload that which is described in his/her TOR.
- b. Above-fulltime workload
  - Any work that is outside of his/her TOR.
  - The calculation of above-fulltime workload cannot exceed more than 7 hours per working day. If an incentive recipient is listed in another activity conducted in the same project period, working hours required for that project has to be also taken into account to calculate the acceptable above-fulltime workload.

## **6. Calculation of Incentives**

The amount of incentives to be provided is determined by total profit/potential service costs, a number of working staff, levels of contribution made by each staff, and the ratio of within and above-fulltime workload offered.

- a. Total profit/potential service cost
  - Total profit/potential service cost is the base of calculating the total incentives to be provided to incentive recipients. Depending on the nature of an activity, total profit/potential service cost is determined as follows;

- Profit making activities: Total profit is determined by subtracting all the costs from the total income generated from a project.
- Community outreach activities: Potential service cost is calculated supposing the project was a normal profit making activity. The relevance of the proposed potential service cost will be examined during the approval process.
- Other activities useful to the College: Potential service cost shall be proposed by an applicant and agreed in negotiation with the College. An applicant must submit market price references of similar products/services s/he intends to carry out within TCT, together with the calculation of necessary costs to prove the relevance of a proposed potential service cost.
- Of the total profit/potential service costs, 33% is reserved for incentives to be distributed among the incentive recipients. In case of a profit making activity, the remaining 67% is taken by the College.

b. Distribution of the incentive

- The incentive share, i.e. 33% the total profit, is then distributed among the incentive recipients as follows;
  - Initiator: 20 % (6.6% of the total profit)
  - Project manager: 20 % (6.6% of the total profit)
  - Working staff: 60 % (19.8% of the total profit)
- The incentive share for working staff is divided further according to the levels of contribution made by each staff in terms of the total workloads offered, within and above-full time workloads combined. For instance, in case there are 3 working staff and their workloads offered to a project are 20, 40, and 40 working hours respectively, the incentive is shared 20%, 40%, and 40% respectively, i.e. 3.96%, 7.92%, 7.92% of the total profit.

c. Deduction of within workload incentive

- For a project manager and working staff, the portion of incentives attached to the within workloads is deducted from the total incentives. For instance, in case a project manager offered 20 working hours of within workload and 30 working hours of above workload, 40% of the total incentive shall be deducted.
- In case of a profit making project, the deducted incentive, i.e. within workload incentive, is taken by the College.

## **7. Steps of seeking approval and claiming incentives**

### **Step 1: seeking approval – completing forms**

**a) Project Approval Form (PAF):** The first step in the process is to complete a Project Approval Form for the project. By filling out the given format, an applicant has to clearly describe the objectives of a proposed activity, its benefits to the College, a clear work plan with a time schedule, all direct costs and indirect costs to be incurred against income, and a list of staff to be involved in the project.

**b) Incentive Approval Form (IAF):** At the same time an applicant has to complete Incentives Approval Form which will identify how profit will be shared among the incentive recipients as well as the College. An applicant has to collect information from all the members of the working staff to indicate their workloads.

### **Step 2: seeking approval – securing authorisation**

**a) Approval from immediate supervisors:** The approval forms, i.e. PAF and IAF, must be first signed by the immediate supervisor of a project manager, and each incentive recipient. The immediate supervisors must check whether the workloads indicated for the staff member concerned is accurate and therefore the proposed activity will not affect the execution of normal workload.

**b) Approval from the College:** After obtaining approvals from immediate supervisors, an applicant has to then seek an approval from the Head of Production Unit, the Vice Principle for Academics and Trainings, and Vice Principal Administration and Finance.

### **Step 3: undertaking the work**

A signed Project Approval Form (PAF) and Incentives Approval Form (IAF) allow the project manager to go ahead with the agreed schedule of work.

If a project requires any changes from the original plan, for instance, in terms of working staff and their workload, the project manager has to report to the College and obtain approvals. The College cannot accept any additional incentive claims caused by unauthorised/unapproved changes during the time of project implementation

### **Step 4: reporting of the work completion and making a claim**

When the work is completed the project manager has to report the results to the College. Once the report has been accepted by the College, the project manager can make a claim of incentive provision, using an Incentive Claim Form (ICF) form.

## **8. Penalty for delays**

Delay in any kinds of activity can potentially damage the reputation of the College as well as the quality of its service delivery as a whole. It is, therefore, crucial that a project manager takes a responsible care in terms of planning, implementation, monitoring, and supervisions, so that the project will complete successfully within the planned period.

In order to inspire such attitude, and accordingly minimize delay of service delivery, this policy, adopting the national law of procurement, takes in a penalty clause as follows;

- Provisions of incentives shall be deducted by 0.1 % for a delay of one day.
- When the delay reaches to 100 days, i.e. reaching 10% deduction, all incentive recipients lose the eligibility of incentive provisions.
- In case a delay is caused by Force Majeure, incentive recipients can renegotiate with the College to determine a new work schedule to complete the project. In such cases, however, the project manager must prove that s/he took reasonable steps to minimise delay caused by foreseeable events, that s/he substantially fulfilled all obligations, and that the College was timely notified of the likelihood or actual occurrence of delay.

END

Annex 6 :  
List of Staff Participated in PU Activities  
in 2013/14

### List of staff participated in PU activities in 2013/14

Activities		Project Manager	Support Staff				No. of staff involved
ET							
1	CCTV Maintenance	NSHIMIYIMANA Arcade	NSABIMANA Joel Elvis	MUGWANEZA Emmanuel			3
2	Sensor Application	NSHIMIYIMANA Arcade	NSABIMANA Joel Elvis	MUGWANEZA Emmanuel			
3	PC maintenance	NSHIMIYIMANA Arcade	Didn't realize				
IT							
1	PC maintenance & IT network mapping development	RUTAYISIRE Tonny	HABINEZA Jean de Dieu				5
2	Leave Management System	RUTAYISIRE Tonny	DUKUZUMUREMYI Dieudonee				
3	IT Driving Examination	RUTAYISIRE Tonny	DUKUZUMUREMYI Dieudonee	MANIRAGUHA Muhamad	MUGANGA Jean Pierre		
4	Oen ICT facility for Kinihira School	RUTAYISIRE Tonny	Didn't realize				
AE							
1	Solar Water Heater	RURANGIRWA Martin	NIYODUSENGA JMV	KABENGA Valens	BANANEZA Christophe	JANUARY Narcisse	7
2	Insect Trap	BAKUNDUKIZE Cleoplace	NIYODUSENGA JMV	KABENGA Valens			
3	Briquette Making Training	RURANGIRWA Martin					
4	Nkyakiriba	KAMANZI Emmanuel	RURANGIRWA Martin	BAKUNDUKIZE Cleoplace			
Total							15



Annex 7 :  
Deliverables of Production Unit Activities

## **PROPOSAL FOR MAINTENANCE OF CCTV CAMERAS AND DISPLAYS**

Based on the discussion between KINIHIRA TEA FACTORY (SORWATHE) and TCT PU on the maintenance and repairing of CCTV camera system (surveillance system), following is the proposal of how the activities can be conducted.

### **I. Understanding of the current system**

From the observatory visit to Sorwathe, the current condition of the CCTV camera system is understood as follows;

- There are CCTV cameras (currently estimated to be the number of 32 CCTV cameras and 4 displays; 3 of LG flat screen TVs and 1 of JVC TV.
- All the cameras are connected to DVRs where 2 are working and one is not working.
- Some of the CCTV cameras mentioned above are not working the number of non-working cameras is estimated to be 11.
- There are few areas within the factory where CCTVs are not installed, yet have some needs, such as the areas for tea packaging, guest house, main entrance, local seller's room, orthodox and others.
- During the study, it has been observed that the cabling system is not very good, so there is an area of improvement for the cabling system. With properly calculated system design, the cabling system can become more efficient and organized which should lead to a persistent system and also ease the maintenance process.

### **II. Technical proposal**

Following is the proposal of how the activities can be done:

- **Contract Period:** 1 Year (the contract can be renewed after one year)
- **General Scope of the Work:**
  - TCT PU is responsible of any maintenance requirement and repair of any of the following devices when damaged; cameras, adapters, displays, and DVRs. Any other device or equipment can be added up on agreement of both sides.

- TCT PU will provide all supervision for repair and maintenance service within the period of the agreement and will propose if there is a need to make further study on how the system can be improved.
  - SORWATHE will be responsible of any cost agreed on the contract, including the cost of any necessary spare parts or new devices required for repair and maintenance. TCT PU will be responsible for the procurement of those necessary spare parts or devices.
- **Contents of the Service:**
    - 1. Improvement of the CCTV and display system**
      - 1.1 Improvement of the existing system**
        - At the beginning of the contract, TCT PU will conduct an initial study to check the conditions of all CCTVs, displays, DVRs, and cable connections, and provide necessary repair and maintenance service.
        - Additionally, during this period, TCT PU will propose a redesigning of the system, such as an improved cabling system, so as to improve the existing CCTV camera system.
      - 1.2 Installation of new CCTVs (optional)**
        - New installation of CCTVs can be also requested by Sorwathe. The details of redesign and the service contents will be determined based on discussions between SORWATHE and TCT PU. This can be an optional proposal and additional service charge will be requested.
        - The preventive maintenance service shall also include newly installed CCTVs free of charge. In case a number of newly installed CCTVs exceed our capacity, the service fees for preventive maintenance service need to be renegotiated.
    - 2. Preventive Maintenance Service**
      - Frequency: After the system is set up, the routine check-up and maintenance service will be provided every month.
      - Service contents: Maintenance would include system check, cleaning, alignment, adjustment to provide efficiency operation of the system, and any on-sight repair.

- Service process: The process will be to check out all the cameras, check how the system display looks and report on the status of the whole system. The report will be submitted to SORWATHE and a signed copy will be taken and filed by TCT PU.

### **3. Repairing service**

- In case an on-sight repair cannot solve the detected problem at the time of routine maintenance, additional repairing service can be provided. The details of the problem will be reported to the client with proposed solutions, before determining the service contents.
- In addition, repairing service will be provided on an on-call basis. In this case, the service provider will come to the site within 1 business day after receiving a report from the client. After inspecting the problem, the details of the repairing service can be determined based on the agreement of both sides. Based on how the device is damaged, the repair can be done at the factory or the device is taken for further check. For any need of spare part or device replacement; a report will be developed on the status of the device and submitted to SORWATHE. Meanwhile the repair can be done and SORWATHE might pay back all the cost spent on the device.

### III. Financial proposal

The following table explains all the figures considered for the financial proposal.

Description	Items	Cost /unit	Quantity	Total cost
1. Improvement of the CCTV and display system	1-1. Equipment and materials (non-fixed cost)			
	* Necessary equipment and materials as well as their quantities will be determined after the initial survey and finalized based on the agreement with the client. * Please refer to the estimated cost of each equipment and material. * Optionally, there may be an interest in installing new cameras in the areas they are missing; the service charge and transportation may be the same as follows.			
	1-2. Service charge and other costs (fixed cost)			
	Service fee: Improvement of existing system	250,000 Rwf	1	250,000 Rwf
	Transportation	80,000 Rwf /return travel	3 times	240,000 Rwf
	1-2. Subtotal			490,000 Rwf
	1-3. Service charge and other costs (optional) (fixed cost)			
	Service fee: Installation of new CCTVs	250,000 Rwf	1	250,000 Rwf
	Transportation	80,000 Rwf /return travel	3 times	240,000 Rwf
	1-3. subtotal			490,000 Rwf
	2. Preventive maintenance  *once per month for a period of one year	2-1. Equipment and materials (non-fixed cost)		
* If on-sight repair requires replacement of parts etc. additional charges will be requested to the client. (prior consultations will be given) * Please refer to the estimated cost of each equipment and material.				
2-2. Service charge and other costs (fixed cost)				
Service fee		100,000 Rwf	12 times	1,200,000 Rwf
Transportation		20,000 Rwf /return travel	12 times	240,000 Rwf
Communication fees		5,000 Rwf /month	12 months	60,000 Rwf
2-2. Subtotal			1,500,000 Rwf	
Big subtotal (1-2&2-2 fixed)			1,990,000 Rwf	

<b>3. Repairing Service</b>	<b>3-1. Equipment and materials (non-fixed cost)</b>			
	<ul style="list-style-type: none"> <li>* Depending on the damage of the devices, necessary equipment and materials will be charged to the client. (prior consultations will be given)</li> <li>* Please refer to the estimated cost of each equipment and material.</li> </ul>			
	<b>3-2. Service charge and other costs (non-fixed)</b>			
	Service fee	50,000 Rwf	-	-
	Transportation * Price depends on the mode of transportation	20,000 Rwf or 80,000 Rwf /return travel	-	-

\* Tax charges will be added to the total price

### **Estimate Cost for Equipment and Materials**

\* The client will be charged for the actual cost only for any necessary equipment and/or materials. A list of necessary items and its prices will be informed to the client prior to the purchase, and a receipt will be provided by the service provider.

<b>Items</b>	<b>Cost /unit</b>	<b>Estimated Quantity for total installation</b>	<b>Estimated total cost for total installation</b>
Cable (coaxial)	750 Rwf /m	1 Km	750,000 Rwf
Connectors	1,000 Rwf	64	64,000 Rwf
Cable protection cover	1,000 Rwf /m	1 Km	1,000,000 Rwf
New Camera	180,000 Rwf	NA	NA
New Display	400,000 Rwf	NA	NA
New DVR	300,000 Rwf	NA	NA

\* Equipment and materials required for the total maintenance and new installation service is given as a reference. The details will be determined after the initial study, and purchased based on the agreement with the client.

\* Equipment and materials required for other maintenance and repairing service will be determined according to the required services.

\* Any purchased item will be charged based on market price.

\* If required, any items other than listed above will be bought based on agreement of determined services.

\* If the transportation or necessary equipment or materials is provided by SORWATHE, TCT PU will not include it in the cost

## **Proposal for Routine Computer Maintenance, Servicing & Support**

For the sake of clarity, our proposal is divided into the following sections:

- ◆ Introduction
  - ✓ Motivation
  - ✓ Objectives
- ◆ Scope & Approach
  - ✓ Maintenance
  - ✓ Servicing
  - ✓ Support
- ◆ Cost Implications
- ◆ Value-Added Services
- ◆ General Terms & Conditions
- ◆ Attachments
  - ✓ Attachment 1: Detailed List of Equipment Covered

**N.B** We would also like to categorically inform you that we are very open to negotiations as far as this proposal is concerned. Apart from the proposed Maintenance project, we are also in a position to offer you need based **Specialized IT Services**. Based on your actual needs and on request, we can submit a separate proposal for these services. We trust you will find our proposal in line with your requirement and look forward to receive your valued approval at the earliest. In case you have queries; please do not hesitate to contact us.

Thanking you and assuring you the best of our services at all times

## ◆ Introduction

### Motivation

Computers are electronic machines that accept data in digitalized form and process the data in high speed to give results based on a program. During daily use of computers, there are a number of factors that pose threats to computers, parts and their peripherals. Dust and moisture are common substances that may cause fatal problems within the computer units and their peripherals if not kept at bay. Therefore computers like other machines need to be regularly checked and kept in good working condition for maximum efficiency, longer life, reduced likelihood of lost files, faster speeds, user comfort and general safety.

This has to be carried out regularly to prevent unforeseen expenses in replacement of computer parts that could otherwise last many times longer if maintenance was carried out.

### Objectives

Having investigated and clearly understood your computer maintenance needs, TCT-Production Unit will primarily seek to maximize the uptime of your computers and peripherals, which we believe is crucial to your day-to-day activities. This will precisely mean a huge cut down on the resources and time that would otherwise be wasted on co-ordination, seeking internal approvals, paperwork etc. thereby allowing your concerned staff to focus on their core business activities.

## ◆ Scope & Approach

TCT-Production Unit will use its own internal design, methodologies and techniques to provide quality and comprehensive computer maintenance, repair and support services to the satisfaction of Sorwathe Tea Factory.

### 1. Maintenance

**Computer maintenance**, herein this proposal, refers to a set of **preventive** procedures performed to keep computers in a proper working condition, minimize possible breakdowns and generally extend their lifetime. TCT-Production Unit proposes to render routine and regular (**preventive**) maintenance on a “**monthly**” basis for the equipment (**computers and their peripherals**), which are specified in attachment 1.

This preventive maintenance will cover:

- ✓ Carrying out complete diagnostic checks for the state of the equipment
- ✓ Deep blowing of the equipment
- ✓ Cleaning and lubricating necessary parts of the equipment
- ✓ Locate and delete malicious spyware



- ✓ Scan disks for virus and install latest anti-virus on the internet
- ✓ Update computers with latest anti-virus & drivers available on the internet
- ✓ Adjusting operational parameters of the equipment
- ✓ Disk Defragmentation and clean up
- ✓ Deleting of Temp files, Temp internet files, cookies, startup items & recycle bin files
- ✓ Carrying out necessary upgrades and expansions (O.S, packages, hard drives, Memory, NIC Cards, Modems, ports etc.)

## 2. Servicing

**Computer Servicing**, herein this proposal refers to the **corrective** activities of repairing and fixing computer hardware & software related problems. TCT-Production Unit proposes to render corrective servicing on an **“upon request”** basis for the equipment (computers & their peripherals), which are specified in the attachment 1.

This corrective servicing will cover:

- ✓ OS/Software troubleshooting & repair
- ✓ Hardware troubleshooting & repair
- ✓ Peripheral repairs
- ✓ Replacement of damaged parts if not repairable
- ✓ Upgrades and necessary hardware expansions (e.g. RAM, OS, Ports )

Our corrective servicing program will meet the following:

- ✓ All servicing activities shall be performed by fully trained, qualified and experienced technicians.
- ✓ Technicians to perform servicing activities shall be selected and dispatched depending on their line of specialty and the nature of breakdown to handle
- ✓ A detailed mechanism (helpline or designated CUG number) shall be put in place for the client to log a service request in the most reliable manner possible.
- ✓ Assure five (4) hour response time from the time a service request is logged. N.B if the request is made after 11:00 a.m. then response will be effected the next working day.

## 3. Support

**Computer Support**, herein this proposal refers to online troubleshooting of hardware or software related malfunctions. TCT-Production Unit proposes to render remote/online support in case of any small scale malfunction of the equipment, TCT-Production Unit intends to set up an unlimited linkage with a selected contact person at the factory through which ad hoc and emergency complaints can be channeled to our technician instantly. This linkage will actually entail adding that contact person to our Caller User Group (CUG), supported by appropriate email and chat platforms. In case of any malfunction which could be solved online, the concerned staff would log a support request to the selected contact person on-site.

The contact person would then pass on the details of the malfunction to our technician who would provide to him/her, all the necessary instructions to rectify the problem.

Our online computer support will meet the following:

- ✓ TCT-Production Unit would undertake to continuously train and qualify the selected contact person in relevant hardware & software maintenance.
- ✓ A dedicated and unlimited communication linkage would be put in place to facilitate all online support activities between our technicians and the contact person on-site.
- ✓ All the communication costs involved in this arrangement would be borne by TCT-Production Unit
- ✓ All online support activities would be handled by fully trained qualified and widely experienced technicians.
- ✓ Technicians to perform online support would be selected and designated depending on their line of specialty and the nature of issue to handle
- ✓ If the problem persists beyond online support, then our technician would be dispatched under our normal servicing program.

## ◆ Cost Implications

### Routine pc maintenance

ACTIVITY	UNIT ITEM	UNIT COST	QTY	FREQ.	TOTAL COST/ YEAR
Routine Preventive Maintenance  (Once a month)	Maintenance Fee	11,000frw/PC  (travel, communication & all other expenses inclusive)	10 PCs	12 times	1,320,0000 frw

### On-request pc servicing & support

ACTIVITY	UNIT ITEM	UNIT COST	TRAVEL COSTS	TOTAL COST/ SERVICE VISIT
Servicing (On-Request)	Service Fee	6,000 frw/ Service hour *the maximum charge is for 3 hours, i.e. 18,00 frw	20,000 frw/ Service visit	(no. of service hours x 6,000 frw) + travel costs per service visit
Online support (On-Request)	Support Fee	NIL	NIL	NIL

**Note:**

- ✓ The costs/rates mentioned above are worked out based on the assumption that all the computers are currently under stable working conditions and there are no major pending issues. If present (upon checking), then the client will be informed on those issues so that we can work out a separate plan for them before the contract.
- ✓ The maximum on-site service/repair time will be 3 hours, if our service technician is unable to repair the equipment on-site within 3 hours, the equipment will, upon approval be transferred to our service center for repair at no extra service charge except for (equipment) transportation expenses which will be borne by the client.
- ✓ The travel costs (service visit), mentioned above are based on the assumption that only a single technician will be needed for the visit. In rare eventualities where more than one technician is actually needed/or bulky repairing tools need to be ferried to the factory, then appropriate travel costs will be met by the client at market price. Moreover, if the factory finds it more feasible, it can provide its own travel arrangements.
- ✓ Upon approval of replacement, TCT-Production Unit will provide ordering, pickup and replacement services but the cost of spare parts, consumables, transportation and any other related expenses will be borne by the client, at market price

**◆ Value-added Services**

Due to our strong desire to create and sustain a strong partnership with Sorwathe Tea Factory, TCT-Production Unit intend to add more value to the above mentioned services (maintenance, servicing & support) by providing the following services, free of charge, in case this proposal is considered:

- ✓ 10 training slots for Sorwathe Tea factory in basic computer skills
- ✓ Documentation of the existing network topology (map)
- ✓ Designing & documentation of network topology for future network
- ✓ Annual inventory of all IT equipment

**◆ General terms & conditions**

- ✓ This proposal covers a once-per month preventive maintenance, an on-request corrective servicing and an on-request remote/on-line support for only the equipment specified in attachment 1, below.

- ✓ If there is any increase in the number of equipment that needs to be maintained, serviced or supported, there shall be a **revision to** the current cost structure (featuring in some discounts). Details of equipment shall be filled in post inspection and signing of this contract.
- ✓ TCT-Production Unit will be at the disposal of the Client for any technical problems and all service requests shall be attended within four (4) hours' time, under the normal circumstances. Requests shall be attended in the same day if they are registered before 11:00 am, otherwise the next working day.
- ✓ TCT-Production Unit shall not be held responsible for the client not meeting software license agreements and therefore as well as damages caused by pirated software
- ✓ Customized Application Software are not covered under this proposal
- ✓ TCT-Production Unit shall be responsible for losses incurred to Client due to faulty maintenance or other factors that may reasonably be attributed to us. This means among other things that in the event the technicians of TCT-Production Unit cause damage to equipment or spares to install, we shall rectify the situation without any charges or cost to Client.
- ✓ TCT-Production Unit shall not be held liable for the loss of data caused by users. However, it will guide/assist in regular data backup, and it will endeavor to monitor with available standard tools that data is being backed up.
- ✓ Under any remote eventuality of data loss, TCT-Production Unit shall assist in retrieving the data lost with the available tools but with no legal obligation to salvage or retrieve the data.

## ◆ Attachments

Attachmet1: Detailed List of Equipment covered

S/N	COMPUTER BRAND	USAGE	SPECS	IP & MAC ADDRESS	COMMENTS
1	Mercury	Dispensary	-1.50GHZ Intel Pentium 4, CPU -758 MB, RAM -40 GB, HDD -Win XP, OS	MAC: 1C-7E-E5-CD-01-B8	-CRT Display (Action) -Not connected to LAN -HP Printer connected
2	Mercury	Secretariat	-3.0GHZ Intel Pentium 4 dual core, CPU -1 GB, RAM -80 GB, HDD Win XP, OS	MAC: 00-E0-4C-I9-23-60	-CRT Display -Not connected to LAN -HP Printer connected -Hard disk not partitioned
3	NEC	Secretariat	-3.0 GHZ Intel Pentium (R) dual core, CPU -1 GB, RAM -40 GB, HDD Win XP, OS	IP:192.168.1.11 GW:192.168.1.1 MAC: 00-25-22-0A-0F-65	-CRT Display (CompuData) -Connected to LAN -No Printer connected
4	Mercury	Human Resource Office	-2.4 GHZ Intel Pentium 4, CPU  -760 MB, RAM -80 GB, HDD -Win XP, OS	IP:192.168.1.102 GW:192.168.1.1 MAC: 00-E0-4C-00-38-CF	-CRT Display (Stallion) -HP Laser jet 1300 Printer connected -Connected to LAN
5	Mercury	Library	-1.8 GHZ Intel Pentium 4 dual core, CPU -3 GB, RAM -80GB,HDD -Win XP, OS	MAC: 00-1E-10-1F-EA-86	-LCD Display (Acer) -Not connected to LAN -Modem is used No Printer connected
6	Kobian	Store	-2.4 GHZ Intel Pentium 4, CPU -734 MB, RAM -80 GB, HDD -Win XP, OS	IP:192.168.1.55 GW:192.168.1.1 MAC: 00-11-5B-E2-13-6A	-CRT Display(ePro) -No hard disk partitions -Connected to LAN -HP Laser Jet 4000 printer connected

7	Mercury	Accounts	-2.8 GHZ Intel Pentium 4, CPU -478 MB, RAM -80 GB, HDD -Win XP, OS	IP:192.168.1.10 4 GW:192.168.1.1 MAC: 00-14-2A-2E-9 A-BA	-CRT Display (Touchmate) -Connected to LAN -No printer connected
8	Touchmate	Maintenance Office	-790 MHZ VIA Samuel 2, CPU -480 MB, RAM -80 GB, HDD -Win XP, OS	MAC: 00-14-2A-90-00 -79	-CRT Display (Stallion) -Not connected to LAN -HP Laser Jet 1018 printer connected
9		Internal Audit	-1.8 GHZ Intel Pentium 4 dual core, CPU -1 GB, RAM -40 GB, HDD -Win XP, OS	MAC: 00-25-22-A5-16 -5F	-CRT Display (@Life) -Not connected to LAN -HP Laser Jet 1100A all in one printer is connected
10	Mercury	Factory Inspectorate	-3 GHZ Intel Pentium 4 dual core, CPU -504 MB, RAM -40 GB, HDD -Win XP, OS	MAC: 00-19-66-54-F5- CD	-CRT Display (ADC) -Not connected to LAN -HP Desk Jet D2460 Printer is connected

## **INSTALLATION OF TCT-MADE SOLAR WATER HEATER(S) (SWH)**

### **FOR THE SORWATHE**

In response to the request given by Sorwathe on the installation of a solar water heater, we would like to propose the following two options;

1. Installation of TCT-made Solar Water Heater on collaboration basis
2. Installation of market available Solar Water Heater

In case of the first option, our trial product can be installed with only installation material and service charge. The cost of product materials will not be charged to Sorwathe. As for the second option, TCT can either procure a product and install with full price, or introduce a seller which deals with market available solar water heaters.

The background of the proposal and its details are described below.

#### **1. Background**

TCT in its department of alternative energy (AE) has been giving various trainings in the areas of alternative & renewable energies. TCT is currently the only educational institution in Rwanda that has sufficient facilities as well as curriculums to deal with such technologies.

One of the technologies we are specialized in is Solar Water Heater. TCT has fabricated a Solar Water Heater in 2010, which was installed in TCT and attained the temperature of 60°C.

Currently in Rwanda, however, only imported Solar Water Heaters are available in the market. Though the government subsidies are available for the installation of those Solar Water Heaters, the imported products are expensive compared to the ones available outside of Rwanda, and it is costly to maintain as some of the components are made with materials not easily attainable in Rwanda. Furthermore, we have observed in many cases, Solar Water Heaters were not properly installed or maintained due to lack of knowledge, resulting in very poor performance.

With this understanding, and in order to strengthen our newly established Production Unit, TCT PU is intending to develop a locally made Solar Water Heater which is cheaper and easily maintained, with provision of proper installation and maintenance service. In this process of product development, we are hoping to extend our collaboration with Sorwathe in performance evaluation of our product. This will help in technology deployment for TCT & Sorwathe as well as developing the country economy through cost effective product in the market.

## 2. Comparison of the products and proposed services

	1. TCT-made SWH	2. Market available SWH
Cost to be borne by Sorwathe (rough estimate)	180,000 RWF	1,080,000 ~1,230,000
Items included in the cost	<ul style="list-style-type: none"> <li>- Installation materials</li> <li>- Installation fees</li> </ul>	<ul style="list-style-type: none"> <li>- Product cost</li> <li>- Installation materials</li> <li>- Installation fees</li> </ul>
Cost to be borne by TCT (rough estimate)	600,000 RWF	None
Items included in the cost	<ul style="list-style-type: none"> <li>- All product materials</li> </ul>	-
Roles of TCT	<ul style="list-style-type: none"> <li>- Manufacturing of SWH</li> <li>- Installation and maintenance</li> <li>- Provision of guidance to a selected Sorwathe technician on the proper use of SWH</li> <li>- Product evaluation</li> </ul>	Option1: <ul style="list-style-type: none"> <li>- Procurement of SWH and installation</li> </ul> Option2: <ul style="list-style-type: none"> <li>- Introducing of the seller</li> </ul>
Roles of Sorwathe	<ul style="list-style-type: none"> <li>- Availing space for installation</li> <li>- Cost for installation materials</li> <li>- Proper use of the system after installation</li> </ul>	
	<ul style="list-style-type: none"> <li>- Provision of a technician as a focal contact person to be involved in the whole process</li> <li>- Reporting the wrong functionality of the product</li> <li>- Maintain the system after evaluation stage</li> </ul>	-

### Cost Comparison of Market Available SWHs

SN	Item	Cost requirement FRW
100 liters SWH	Does not exist	-
200 liters SWH	Product cost	800,000
	Installation materials and service cost	280,000
	Total cost	1,080,000
300 liters	Product cost	950,000
	Installation materials and service cost	280,000
	Total cost	1,230,000











Financial requirement of the TCT-made SWH (in case of 100 litter SWH)

Item	Total	Organization in Charge
Product material cost	600,000	TCT
Installation material	130,000	Sorwathe
Installation fee	50,000	Sorwathe
Total	780,000	TCT/Sorwathe

List of product materials

NO	Items	Size/specification	Quantity
1	GI Sheet	0.6mm*122mm*244mm	3pcs
2	GI Sheet	2mm*122mm*244mm	1pc
3	Aluminium Sheet	0.6mm*122mm*244mm	1pc
4	Insulation (Glass wool)		1/2 bag
5	GI Pipe	1 inch*6m	2pc
6	GI Pipe	½Inch	4pcs
7	GI Pipe*	¾ inch	1pc
8	Expansion Clip		110pcs
9	Rubber Gasket	1" width X 3 mm thick	10 m long
10	Plain Glass	4mm thick *1m squared	2pcs
11	Black board Paint		1kg
12	Red Oxide Paint		1kg
13	Screw	M8, bolt & nut	40 pcs
14	MS Angle	3mm thick*20mm sq*6m long	2pcs
15	GI Nipple	½ inch	5pcs
16	GI Socket	1 Inch	8pcs
17	GI Union	1 Inch	4pcs
18	GI Elbow	1 inch	8pcs
19	Reducer Socket	1-¾ inch	2pcs
20	Plug	1 inch	5 pcs
21	Water tap	¾ inch	1pc

### 3. Time Schedule for the installation of TCT-made SWH

Activity	July	August	After installation for 6 months
Acquisition of materials			
Preparation of part material			
Parts assembling			
System testing			
Site layout			
System installation			
System commissioning Routine maintenance and product evaluation			

## **INSECT TRAP FOR TEA MOSQUITO CONTROL IN TEA PLANTATIONS**

### **General Introduction**

Tea is a perennial medicinal crop cultivated and is one of the most important agro-industrial crops sustaining economy of most tea cultivating countries. It is grown in a wide

range of soil types found in tropical, sub-tropical and temperate regions. As an important health drink (made from the leaves and tender shoot of evergreen shrub or tree) with medicinal value, tea has gained immense popularity among domestic as well as overseas consumers.

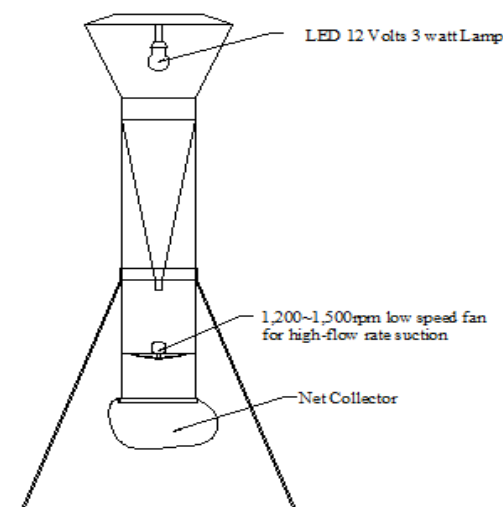
It has commonly been reported that tea mosquito bug, (*Helopeltis theivora*) is one of the most destructive polyphagous sucking pests of tea plantations because it attacks only the young shoots for feeding and egg laying which of course is the actual crop of tea. It has been mentioned that the adult mosquito bugs are more active during the hot and sunny periods as compared to the cooler parts of the day

### **Control measures of insects:**

In order to avoid undesirable side effects of synthetic chemicals, a LED light trap consuming negligible energy can be used as an ecologically based strategy for sustaining long-term crop protection. The individual light traps will be placed at different locations and will operate either by using combined or individual solar power. depending upon the requirement design to avoid expensive electricity.

### **Sketch of the LED light insect trap:**

Depending upon the requirement the trap can be fabricated with individual solar system for each trap or collective solar power, powering 5 to 10 traps depending upon the site situation.



**Cost:**

The below table is the cost estimation for equipment and materials for 1 unit of insect trap without any labor charge included. The cost of 1 unit can be reduced if the number of an order increases. For efficient production, we would like to ask a client to order minimum of 3 units.

Items	Quantity	Cost /unit	Total (Rwf)
<b>ELECTRICAL EQUIPMENT</b>			
Solar panel 10 watt	1	25000	25000
Battery 3.5AH 12 volts	1	15000	15000
LED lamp 1-2 watt 12 volt	1	4000	4000
Fan low speed/Low consumption 12 volt	1	6000	6000
Wire 1 m	1	500	500
LDR Kit set(3watts,12 Volts)	1	5000	5000
Lamp holder	1	400	400
PVC pipe 1m (Diameter=200mm)	1	6500	6600
Nut/Bolts/Washer 10mm	20	150	3000
Nut/Bolt/washer 5mm	26	100	2600
Ms Steel-3m	1	4000	4000
<b>Total Cost estimation.</b>			<b>72100</b>

## **Proposal for Bio-Briquette Making Training**

At TCT, we have a wide experience in bio-briquette making and giving trainings. Trainings can be tailored according to the request from clients, depending on their needs and areas of interest. Below is basic information of briquettes and the information of our briquette making trainings.

### **1. BASIC INFORMATION ABOUT BIO-BRIQUETTES**

- **What are bio-briquettes?**
  - Briquetting is the process of converting low bulk density biomass into high density and energy concentrated fuel briquettes.
  - Bio-briquette is an alternative source of energy used to improve cooking and heating efficiency at domestic household, replacing traditional fuels such as woods, coals, natural gas, and fossil fuels etc.
  - Bio-briquettes are made by using easily available agricultural waste, such as grass, husks, corn stalks, leaves, food and animal wastes.
- **What are the benefits of bio-briquettes?**
  - Improved combustion efficiency: The efficiency of briquette stove can be as high as 26 percent compared to a traditional stove which has efficiency of 12 percent or less. Compared to firewood, briquettes are 40% more efficient, as well as hotter and longer lasting.
  - Less smoke & improving health: Biomass briquette produces less smoke compare to firewood, and there are no harmful gases (such as Sulphur) released. Pure woody biomass charcoal produces about 28 mega joule/kg. This makes briquettes clean and efficient fuel.
  - Easy to handle: Compacting biomass waste into briquettes reduces the volume by 10 times, making it much easier to store and transport than loose biomass waste. Moreover, briquettes are easier to store and use for cooking, because they are uniform in size and composition, and have a long shelf-life.
  - Easy to make: The materials for bio-briquettes can be easily obtained in rural areas. The process and required equipment differs according to the type of bio-briquettes, but it is a simple process once the basic ideas are understood.
  - Less expensive: The purchase price of biomass briquettes is less than natural gas, propane and fuel oil. Coal is a bit lower in price
- **What are the disadvantages of bio-briquettes?**
  - Briquetting requires briquetting technology-additional cost
  - Briquettes require sometimes special cooking & heating devices
  - Difficult to ignite (compared to loose biomass)
  - The production process can be labor intensive

- **What are the types of briquettes and how are they made?**

Though densification is the general process of compressing raw materials to make bio-briquettes, there are a few approaches to briquette making, as shown in the table below.

Type of briquettes	Hand-pressed briquettes	Hand extruder briquettes	Beehive briquettes
Process	<ul style="list-style-type: none"> <li>• Low pressure by hand</li> </ul>	<ul style="list-style-type: none"> <li>• Low pressure by hand extruder</li> </ul>	<ul style="list-style-type: none"> <li>• High pressure</li> </ul>
End product	<ul style="list-style-type: none"> <li>• Hand pellets</li> </ul>	<ul style="list-style-type: none"> <li>• Hand pellets made by extruder</li> </ul>	<ul style="list-style-type: none"> <li>• Briquettes by mold</li> </ul>
Necessary machineries	<ul style="list-style-type: none"> <li>• Charring drum or charring pit</li> <li>* Charring drum is more ideal as it produces less wastes</li> </ul>	<ul style="list-style-type: none"> <li>• Charring drum (ideal) or charring pit</li> <li>• Extruder fixed on a table</li> </ul>	<ul style="list-style-type: none"> <li>• Charring drum (ideal) or charring pit</li> <li>• Mold</li> </ul>
Advantages	<ul style="list-style-type: none"> <li>• Easy to make without machineries</li> <li>• can be used in charcoal stoves</li> <li>• can be added to and taken out from the fire anytime</li> </ul>	<ul style="list-style-type: none"> <li>• Easy to make</li> <li>• can be used in actual stoves or charcoal stove</li> <li>• can be added to and taken out from the fire anytime</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Applicable in NIDO cane stove or special stoves</li> <li>• Lasts long (for about an hour) without adding any briquettes</li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>• It's calorific values is less than that of pure charcoal</li> <li>• Labor intensive</li> </ul>	<ul style="list-style-type: none"> <li>• It's calorific values is less than that of pure charcoal</li> <li>• Less but still labor intensive</li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable in local charcoal stoves</li> <li>• Cannot be added or taken out.</li> <li>• Less but still labor intensive</li> </ul>

Though the different types of briquettes will be explained in the training, the client can chose which briquettes making to be focused, and also some machinery to be bought.



## 2. Possible Areas of Bio-briquettes Application and Project Ideas

- **Community outreach projects**
  - Communities supported by Sorwathe can receive trainings on briquette making funded by Sorwathe. Briquettes can be introduced to improve their quality of lives, and/or business tools.
- **Installing briquette making facilities within Sorwathe factory**
  - There is a possibility of Sorwathe manufacturing briquettes using factory waste. The idea needs to be studied by collecting information on the waste being produced and its amount.
  - Once the possibility is confirmed, the trainings can be given by TCT and necessary machineries will be installed.

## 3. Contents of the trainings

- Length (standard course) : 5-7 days (can be longer depending on the content of the trainings)
- No of trainees: 20 – 30 people
- Location:
  - Tumba College of Technology – suitable for intensive training, e.g. for briquettes making trainers
  - Requested site – depending on the target trainees a site can be determined, in which case the training contents have to be modified to some extent
- Contents:
  - Introduction of briquettes & biomass technology
  - Domestic Biomass Burning in Rwanda
  - Charcoal production practice of Rwanda
  - Benefit of bio-briquettes
  - Different types of briquettes
  - Different types of binder
  - Identification of briquette materials
  - Different techniques used to produce briquette
    - ✓ Charring
    - ✓ Grinding
    - ✓ Briquetting
  - Cooking test
- Course materials & equipment:
  - Depending on the type of briquette

\* The detailed contents of a training will be determined based on a request from a client.

#### 4. Cost

- The detailed cost estimate can be given once there is a request
- Just for reference, the below is the cost of training we conducted in the past

Target: Briquette Making Trainers

Duration: 14 days

Location: TCT

Total Cost: 3,876,000 RWF

Breakdown of the cost:

Item	Cost
1. Training Consumables	276, 000 RWF
2. Training Materials	75,000 RWF
3. Logistics Cost	2,854,000 RWF
4. Communication	90,000 RWF
5. Other costs	581,000 RWF
Total	3,876,000 RWF



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## Concept Note

**Project: E-System for Traffic & Road Safety Examinations**

Proposed by Tumba College of Technology (TCT)

To

Rwanda National Police (RNP)

Northern Province, 2013



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# **I. INTRODUCTION**

## **Background**

In view of EDPRS 2, Rwanda's medium-term strategy to put Rwanda on a higher growth trajectory, improved service delivery is extremely emphasized. With the use of ICTs rapidly taking root in Rwanda, incorporating these technologies seems to be the natural choice for revamping service delivery in both private and public entities. Rwanda National Police (RNP), as a vital service provider to the public has been an early adopter of this drive through platforms such as E-Policing. However, expanding this technological drive to other services provided by RNP would be invaluable. Tumba college of Technology, through its production unit has rolled out a plan to engage its technological expertise towards developing platforms that would revolutionize service delivery in key institutions in Rwanda. A point in case is the E-Examination platform that together with the technical support from JICA is being envisioned. Given the missions of RNP that are centered on improved service delivery, TCT is convinced that it would be of mutual benefit for RNP to support this project.

## **Purpose**

The "E-System for traffic & Road Safety Examinations" seeks to digitalize the process through which RNP conducts examinations for provisional driving license. Conventionally, this process is completely manual hence time consuming, labor-intensive, bureaucratic and corruption friendly. In adopting the E-System for traffic & Road Safety Examinations, RNP would cut unnecessary costs as well as closing the loop holes involved in the manual process.

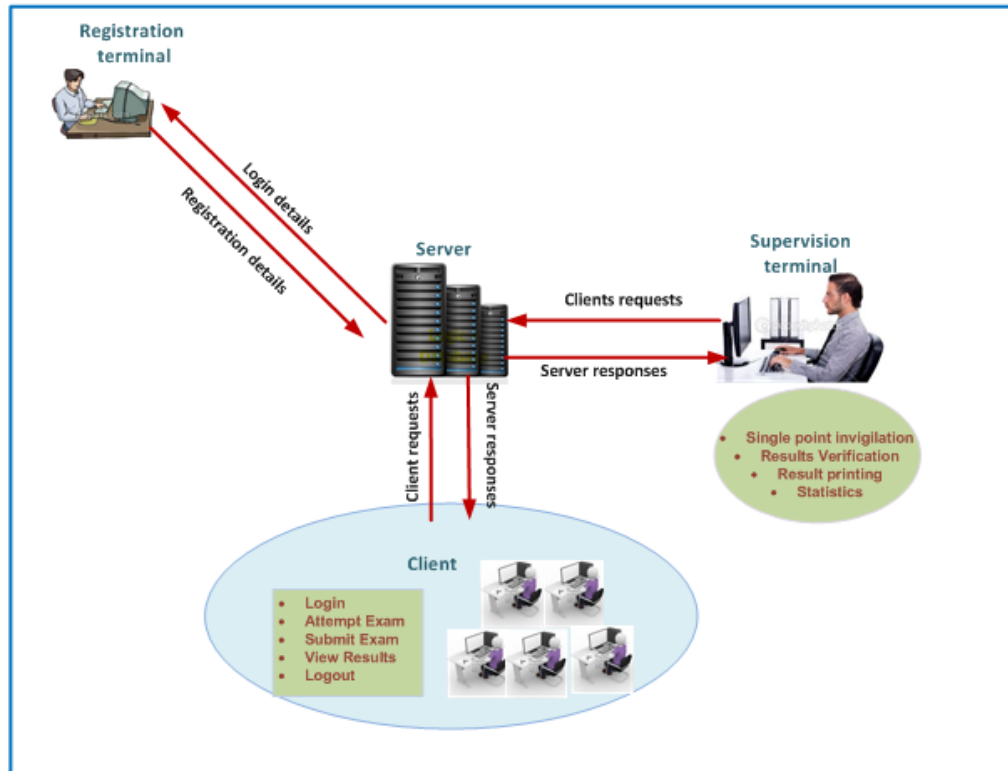
# **II. PROJECT DESCRIPTION**

## **Objectives**

The project is designed around a series of measurable objectives that, collectively, will help us track the progress towards accomplishing its purpose. The development objective of the project is to be able to:

- Verify candidates' login details
- Randomly generate a unique set of exam questions for each candidate
- Automatically set time exam sessions
- Automatically and instantly assess the candidate's responses upon submission
- Return the results immediately to the participating candidate
- Keep a log of participating candidates plus their results for future reference
- Generate various performance analysis reports and graphs almost instantly

## Conceptual System Design



## Features

- Web-Based examination management system
- Secure login and access control
- Bulk question bank with answer choices and correct answer
- Text, graphic, audio and video content (questions)
- Auto- generated (unique) question paper
- Auto- timed exam duration plus automatic submission mechanism
- Auto- response evaluation plus on the spot result declaration
- Various performance analysis reports

## Procedure

In the above system design, candidates would use existing platforms to register for exams. Registration details would then be sent to a database on the system. The system will instantly generate login details for the candidate. On login, the system would verify the login details; link the candidate to the instruction page. From the start button, the system randomly generates a unique set of exam question for the logged-in candidate. Exam questions would be attempted and responses submitted during a timed session, automatically set by the system. When the timed session expires before submission, the system would automatically submit and considers only attempted questions. Upon submission, the system automatically assesses

the candidate's responses against the correct answers in the database and instantly returns a result page to the candidate while storing a record for future reference.

### **Anticipated Benefits**

E-System for Traffic & Road Safety Examinations will benefit both the examining body (RNP) and examinee (Candidates) in almost equal amounts. In other words the benefit is a comprehensive enhancement in service delivery at the traffic examinations department.

- It will significantly cut down on the labor-intensiveness of the examination process
- Consequently operational costs would be cut down
- Being an electronic system, it will significantly minimize paper work
- Being electronic, it will be able to even accommodate audio and video questions which are otherwise not possible with a paper based examination
- Being automated, it will minimize on corruption within the examination process
- With randomly generated questions, cheating among candidates will be minimized
- Exams could be conducted any time of the day and with much more frequency
- Getting results immediately will reduce on the anxiety of waiting among candidates
- Being automated, candidates will have confidence in the accuracy of the assessment
- System will enable traffic police to tap into that growing market of elites who would otherwise be reluctant to sit for their examinations with the status quo
- Increased revenues through increased frequency of conducting exams

### **Future Enhancement**

In this concept note, a conceptual design of the pilot project has been captured. However, as a matter of fact, we understand that traffic police would want to extend accessibility of such a system to different exam centers but with a centralized control point. Given the country's high bandwidth capacities through the optic fiber backbone already in place, this should be a dream within reach. More specifically however, the system is designed to accommodate the following enhancements:

- It can be extended to use higher level security mechanisms.
- It can be interfaced with other national projects like NID.
- Exam questions can be stored and processed in encrypted form using unbreakable keys and functions
- Exam questions can be generated in terms of levels (Easy/Medium/Hard)
- Touch screen input facilities can be incorporated, for semi computer literates.
- Survey/feedback Facility after the exam can be incorporated

### III. CONTACT INFORMATION

- |  |  |
|--|--|
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## E-SYSTEM FOR TRAFFIC & ROAD SAFETY EXAMINATION

Proposed by  
Tumba College of Technology

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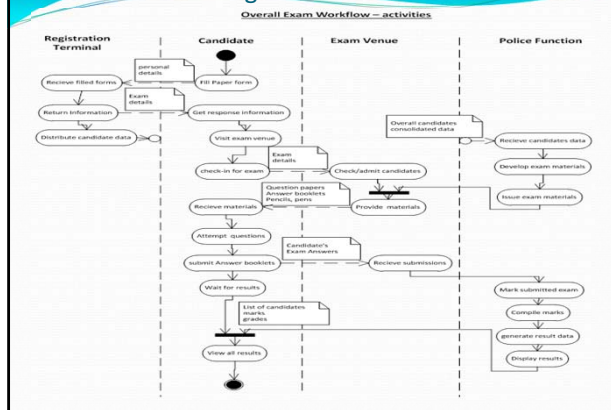
## Background & Motivation

- ◆ Examinations are very important in judging one's learning capability. Traditionally, the approach of measuring a person's level of knowledge in a topic has been examination.. Thus, the need of examinations in schools, colleges, universities and even companies for recruitment purposes.
- ◆ Today, paper-based exams are rapidly being replaced by electronic-based testing systems. Sometimes referred as "online examinations", these are examinations conducted through an intranet or internet, where a candidate is given an automated time limit to answer exam questions, submits his/her responses electronically and gets results almost instantly upon being evaluated by an automated process.
- ◆ With the use of ICTs rapidly taking root in Rwanda, TCT, through its production unit has rolled out a plan to develop software application which will enable Rwanda National Police, to conduct traffic examinations on an electronic platform. Compared to the conventional method being used today, this system boasts of enormous advantages.

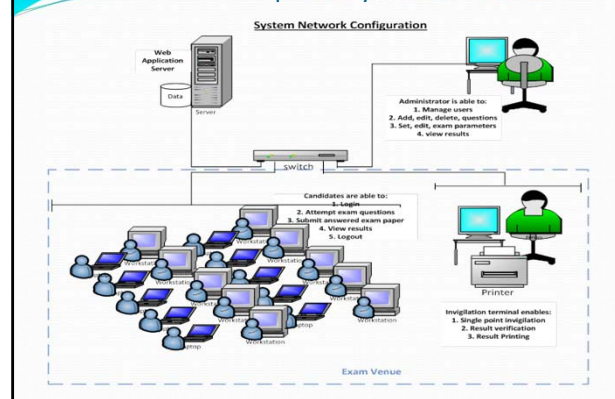
## Objectives

- ◆ The "E-System for traffic & Road Safety Examinations" seeks to digitalize the process through which RNP conducts examinations for provisional driving license. Conventionally, this process is completely manual hence time consuming, costly, labor-intensive, bureaucratic and corruption friendly.
- ◆ Police needs an examination process which is less costly, less time consuming, easy to manage with minimum labor involved. On the other hand, the clients need an examination process which is convenient, flexible less bureaucratic, fast and trustworthy.
- ◆ Our system therefore aims at cutting on the unnecessary costs, time, labor, corruption loop holes involve in the manual process as well as making the process as convenient as possible.

## Existing Exam workflow



## Proposed System



### How the system works

- In the above system design, candidates would use existing platforms to register for exams. Registration details would then be sent to a database on the system. The system will instantly generate login details for the candidate. On login, the system would verify the login details; link the candidate to the instruction page. From the start button, the system randomly generates a unique set of exam question for the logged-in candidate. Exam questions would be attempted and responses submitted during a timed session, automatically set by the system. When the timed session expires before submission, the system would automatically submit and considers only attempted questions. Upon submission, the system automatically assesses the candidate's responses against the correct answers in the database and instantly returns a result page to the candidate while storing a record for future reference.

### System Features

- Web-Based examination management system
- Secure login and access control
- Bulk question bank with answer choices and correct answer
- Text, graphic, audio and video content (questions)
- Auto-generated question set
- Unique question set for each candidate
- Question generation combines levels: simple/medium/hard
- Auto-timed exam duration plus automatic submission mechanism
- Auto-response evaluation plus on the spot result declaration
- Various performance analysis reports

### User-Modules

- The system will be designed in three User Modules which are Administrator, Invigilator and Candidate.
- As all of these have different requirements, the modules are designed to meet their needs and avoid any type of confusion.

### Administrator

- **Manage Users**
  - Add/edit/delete supervisors
  - Add/edit/validate/delete candidates
- **Manage Exams**
  - Add/edit/delete questions
  - Set number of questions to be generated for exam
  - Set quota for each level(simple/middle/hard)
  - Set pass mark for the exam
  - Set duration for the exam
  - View results
  - Generate reports

### Invigilator

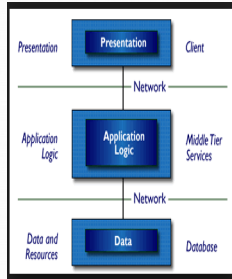
- Verify candidate
- Generate/assign sitting code to candidate
- Enable/disable exam
- Set language
- View progress
- View results
- Print results

### Candidate

- View instructions
- Generate exam
- Take exam
- Submit exam
- View own score

## Requirement Specifications

### Architectural Overview



### Three-tier Environment

- ① Presentation (client tier)  
HTML, CSS
- ② Application logic (middle tier)  
PHP
- ③ Data (database tier)  
MYSQL

### Client Tier

- Mozilla fire fox and above
- Windows Vista,7 & 8
- Pentium dual core and above
- 1 GB of memory and above

### Middle & Database Tier

- Linux
- Apache
- i7 Intel 4 core CPU
- 4 GB memory
- 500 GB Hard Disk (RAID)
- UPS



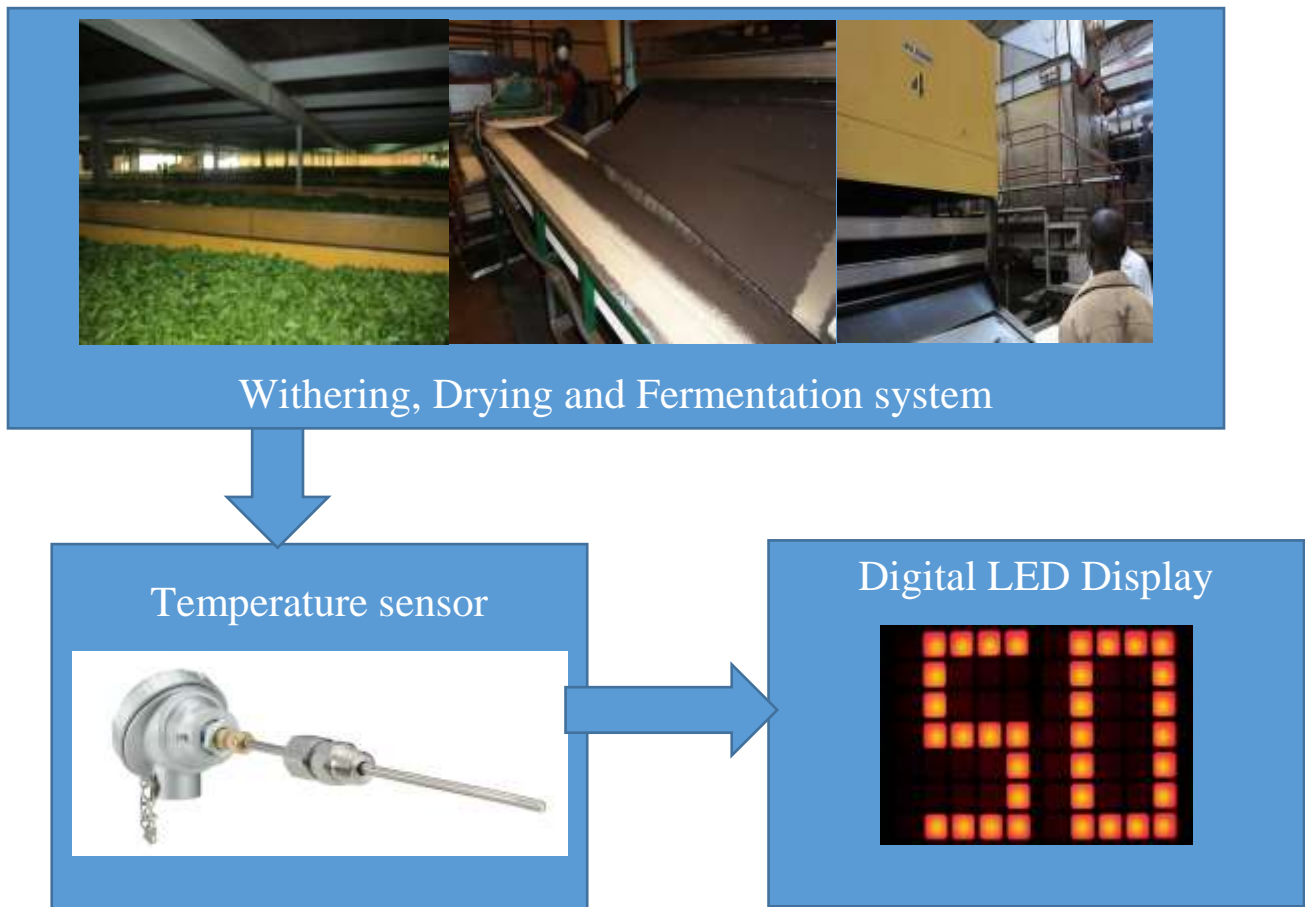
## PROCESS CONTROL SYSTEM

### 1. Improvement of temperature observation subsystem

The withering system of Sorwathe Tea Factory is a system whereby water content is minimized in the tea leaves, this is the same on the drying system as well as fermentation system where the tea water content should be minimized to a certain value.

After observing the system and gather information on the working of the system, we have seen that to display temperature, they use liquid-filled thermometer or analog meter. It's difficult to check temperature.

The proposition of the improvement in the system is based on the figure below, if temperature sensors are put in the withering and connected to a digital display system, the temperature change can be monitored easily. The same system can be applied in the dryer and fermentation.



**Figure 1: Temperature observation subsystem**

In the dryer, the person in charge follows up the start and end time; this is done in order to mention the same time that the tea should be dried, therefore, they write the starting and ending time on the black board whereby the person in charge checks only on his watch if the time has elapsed yet.

```

graph TD
    A[Button - Pushed Manually] --> B[Microcontroller]
    B --> C[Alarm Buzzer]
    B --> D[Digital display]
    E[Dryer system]
  
```

The diagram illustrates the control system for a dryer. It consists of five main components arranged in a flow:
 

- Dryer system**: The primary equipment being controlled, shown with an image of a conveyor belt and a worker.
- Button - Pushed Manually**: A manual input device that sends a signal to the microcontroller.
- Microcontroller**: The central processing unit that receives input from the button and sends control signals to the alarm buzzer and the digital display.
- Alarm Buzzer**: A device that provides an audible alert when triggered by the microcontroller.
- Digital display**: A visual output device showing numerical data (PLAN, ACTUAL, STATUS) triggered by the microcontroller.

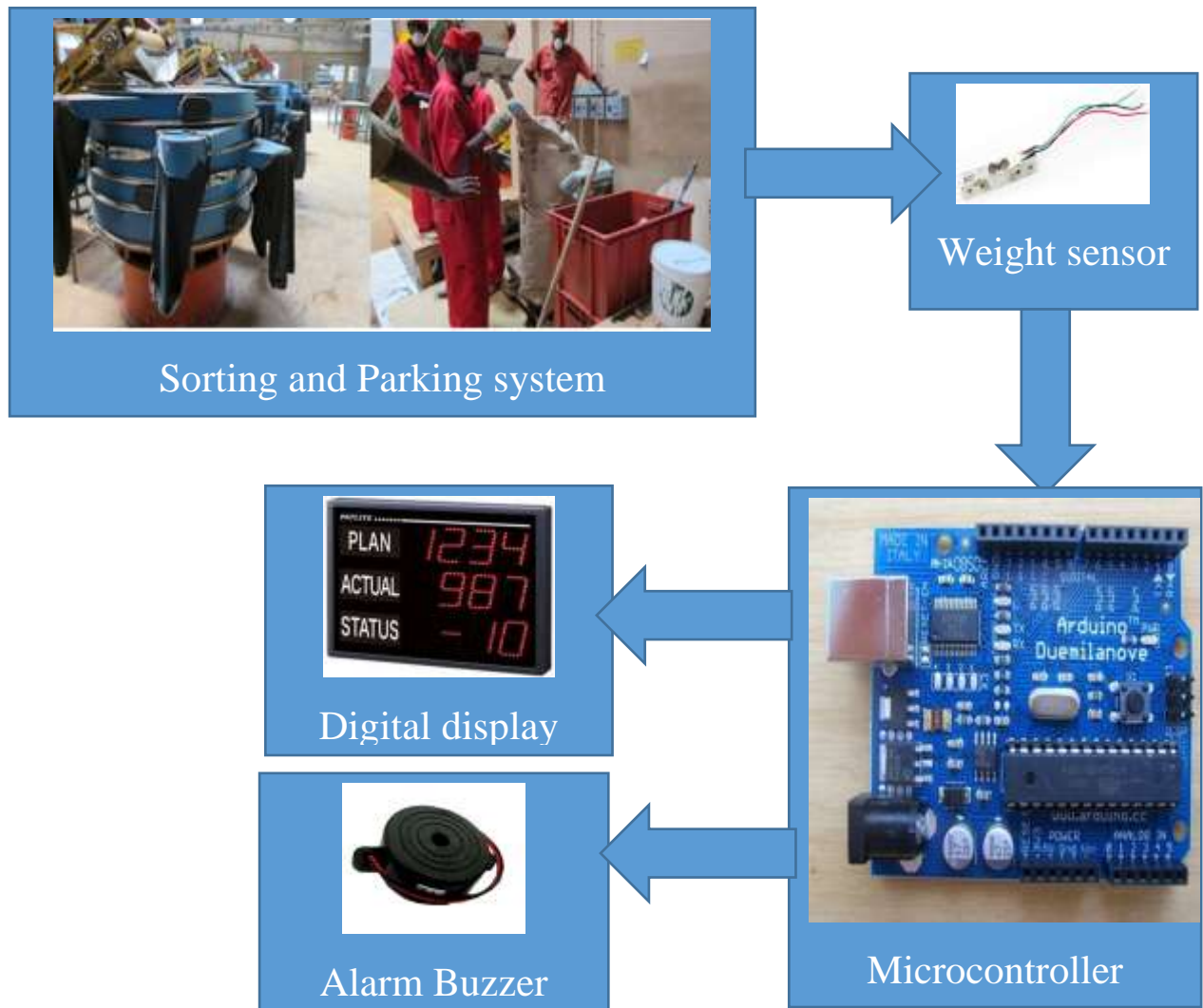
 Arrows indicate the direction of signal flow: from the manual button to the microcontroller, and from the microcontroller to both the alarm buzzer and the digital display. The dryer system is shown as the target of the overall process.

2

### 3. Improvement on tea sorting and packing subsystem

In the sorting as well as packing of the tea, there is person who is always looking at the container the time it will be full.

We propose a system which contains the weight meter, the weight display and an alarm which warns if the container is full. The following figure illustrate the system.



**Figure 3: Tea parking subsystem**

Annex 8 :  
Production Unit Activity Review

## Analysis of PU conducted activities: Challenges faced and possible solutions

※ Type: I/G = Income Generation, C/O = Community Outreach, and (I/G) = possible income generation activities but still at the product development phase

Dept.	Activity	Type		General Description and Status	Faced Challenges	Causes	Possible Solutions
IT	PC maintenance for Sorwathe (Tonny)	I/G	Service Provision	PU prepared a proposal for PC maintenance service, yet the <u>proposal was rejected</u> due to high setting of costs.	<b>Cost Effectiveness</b> Profitability of the project was questionable.	Just one contract of maintenance service cannot be profitable as it requires a lot of attention, staff & time, which TCT as teaching institution does not have an advantage.	Need to focus on/ select projects that TCT has a comparative advantage. Should focus on projects that can be manageable within the limited resources of TCT. E.g. Software development
					<b>Slow Progress</b> Slow proposal making process	PU members cannot concentrate on PU tasks due to other PU tasks	Need to coordinate within the department to avoid delay in conducting necessary tasks
					<b>Right price settings</b> We were not sure the price was attractive or profitable.	Lack of experience in the concerned market.	Need to conduct detailed research before entering into the business. (the size of market, possible competitors etc.)
						Lack of PU strategy as to how much income we should make from this particular project. (Sometime we need to make a strategic decision to lower the price to just get a contract and gain experience)	Need to have a clear idea on exactly how much PU should generate.
					<b>High cost</b> High cost for transportation made financial proposal not attractive	Had to set the price high for transportation costs because the site was not easily accessible	Should avoid projects/services that require too regular use of transportation
	Leave Management System (Tonny) (Deogene and Emarble)	(I/G)	R&D/ Sales of TCT product	Developed a software for leave management system. Currently being used at TCT HR for trial basis. Once the software becomes well developed PU can start selling the product, for example to factories, schools etc.	<b>Unavailability of dept. staff</b> Only a few limited number of people were involved in the project.	Lack of coordination within the department. PU selected activities were not owned by the department. It was not clear as to who should do what. Lack of motivations	Need to make sure that the department itself is in charge of selecting and conducting any PU activities, so that the department itself can determine who should in charge of what and how. If a person in charge faces some problems, the department can appoint somebody else to support or replace, so that the project itself will be delivered without delay.
	Digitalized Driving License Exam (Tonny) (Mohammad)	(I/G)	R&D/ Sales of TCT product	Developed a proto type for demonstration. As a next step, <u>PU is planning to visit the police to showcase the idea</u> . If the police accepts the idea, TCT PU might be able to develop a practically applicable product on a contract basis.			
	IT Lab open access for Kinihira school (Tonny, John)	C/O	Training	The arrangement was made between TCT IT dept. and Kinihira school, yet <u>it was not realized at the end</u> as Sorwathe, the sponsor of the school, failed to provide a means of transportation.	<b>Poor Planning</b> The arrangement was being made smoothly on the TCT side. The only problem was the failure to provide means of transportation at the side of Kinihira school.  But we could try to see how the service can be delivered better.	Strategic plan	As the number of staff is limited, the department should make a clear plan on how many schools/organizations we can accommodate for one holiday, when and how.
						Coordination within IT dept.	
						Means of transportation.	Need to also think in strategic plan how to provide means of transportation for the schools in need. If the plan was made well ahead, TCT can also provide TCT bus??

ET	CCTV maintenance for Sorwathe (Arcade)	I/G	Service Provision	PU prepared a proposal for PC maintenance service, yet <u>the proposal was rejected</u> due to high setting of costs.	<b>Technical Skills Level</b> Proposal contents Technical proposal wasn't too sure on what information needs to be included	Lack of experience in making proposals	Proposal making lectures/manuals?  Requires advice from departments (this might also take time)
					<b>Technical Skills Level</b> Deep analysis was lacking	Couldn't detect a detailed problems, e.g. lacking connectors etc., Only with TCT itself the analysis cannot be enough due to lack of skills and actual activities would have faced some difficulties	Require advice from departments
					<b>Right price settings</b> financial proposals	Lack of information Lack of experience Checking on the internet but it was difficult because of TCT surroundings. There are no shops, need to go to Kigali.	Need to conduct detailed research to understand the market price of the goods/services concerned.
					<b>Slow Progress</b> Time management issues. It took too much time to prepare a proposal. It cannot be attractive to business people.	Lack of experience Had also some other departmental responsibilities to be cared.	Need to coordinate within the department to avoid delay in conducting necessary tasks
					<b>Availability of department staff</b> Someone may help a lot but they need to also give their time, so it can happen in voluntary basis.	People don't understand what PU is yet of r what PU is doing.	TCT itself has to have a same understanding of PU. People needs to be assigned properly within the department.
					<b>Lack of support from the dept.</b> It was difficult to gain support from the department itself. Sometimes the department didn't allow some of the department staff to join the activities.	Not enough number of staff. No proper communication with the department was made. No proper information was given. The department can give priorities to other activities. ET staff having other responsibilities, teaching mentors, IAP, Library etc..	Need to involve department as much as possible. Department should be in charge of selecting a project, make a strategic plan of PU activities (what activities to be done for a given year), allocating necessary people, and monitoring the projects.
					<b>Slow Process/Lack of flexibility</b> needs to process documents for mission allowance. need to wait for a day. Cannot get longer days for being away.	As public institution, there are procedures we have to follow, that slows down some process.  Lack of transportation.	Need to think of an activity that can be done in those limited conditions.  Buying a second-hand car?
					<b>Technical Skills Level/Slow</b> Needed to study also about CCTVs. What kind of functioned do they have etc., before having general ideas of CCTV. Before thinking about what we can exactly do.	Lack of experience & knowledge  Timing of submitting a proposal was too early. Before giving a proposal or making it a project, we should have given enough time for research to gain sufficient knowledge.	Should give more importance to "research", which can develop into a business later. Need to select a topic wisely so that the experience will be beneficial to the skills development at TCT.
	Sensor Application (Arcade)	(I/G)	R&D/ Sales of TCT product	ET dept. is <u>planning to conduct a research on sensor application</u> in factories such as Sorwathe and Nyriangarama. After the research is done, ET dept. (as PU) can make a proposal for applying the sensors.	<b>Availability of necessary materials in Rwanda</b>		Conduct R&D to explore possibility of producing needed goods/products using locally available materials. Work together with private companies which has access to procuring necessary materials from abroad.
					<b>Technical Skills Level</b> Difficult to give ideas for potential applications in Rwanda	Exposure to new technologies are lacking. It is difficult to give ideas for something we have not seen.	Promote R&D.
					<b>Slow progress</b> Time is not enough	Need to take time to learn new technologies	
	Robot Presentations (Arcade)	(C/O)	R&D/ Sales of TCT product	The idea was discussed between TCT IT dept. and Kinihira school and agreed to work on a possible date to conduct a presentation. Yet <u>it was not realized in the end.</u>	<b>Poor Planning</b> Lack of progress confirmation TCT failed to communicate further with the school to make an arrangement.	Lack of coordination Was not clear who should communicate and who should be in charge from PU.	Need to be clear on who will do what among PU members.
						Lack of strategic plan	As the number of staff is limited, the department should make a clear plan on how many schools/organizations we can accommodate for one holiday, when and how.
						Coordination within ET dept.	



	Solar Water Heater for Sorwathe (Martin&JMV?)	I/G	R&D/ Sales of TCT product	Developed a TCT trial SWH product. Once the finishing work and product check is completed, the <u>SWH will be ready for installation</u> . As this is a trial product, Sorwathe is paying only for the installation materials, and the rest is borne by TCT (JICA).		The production process was not well coordinated/supervised as the person in charge was not clear. Everybody didn't think as he was in charge, so they didn't take it as serious.	One person should be in charge of the whole process of the production. The person in charge has to plan and see the progress through to the end. There needs a mechanism to see the progress. Person needs to be more serious, needs to be motivated.
					Slow progress The production process is taking too much time.	Internal problem Having more than 2 supervisors, director of PU and HOD, is difficult. Director of PU does not know what other responsibilities are given by the department. Teachers cannot ignore departmental responsibilities.	Department should be in charge of "strategically" selecting, implementing and monitoring the activity.
						Technicians were not motivated Technicians saw it as additional work Involvement of department staff to PU is limited. It varies among ppl, some are open minded but others are not.	Need to have a clear incentive system.
						Purchase of unplanned items Request takes time to proceed.	Procurement plan as well as activity plan needs to be well developed in advance.
					Slow progress Procurement of necessary materials Takes a lot of process.	The admin staff was not able to give priorities to PU related procurement issues.	PU/department needs to select activities that are more predictable.
					High cost	Purchasing materials at small quantity can cause a unit price of the product high.	Should be manufactured in bigger orders. Shopping should be done once to minimize the cost of transportation. Keep good contacts with the suppliers.
	Insect Trap for Sorwathe (Cleoplace)	(I/G)	R&D/ Sales of TCT product	Working on developing a trial product. <u>Just finished purchasing necessary materials</u> and ready to start building a product.	Slow process It took long time to determine and procure all the necessary materials.	Availability of necessary materials in Rwanda Couldn't easily find needed materials. Finding materials took a lot of time, visiting many shops.	Conduct R&D to explore possibility of producing needed goods/products using locally available materials. Work together with private companies which has access to procuring necessary materials from abroad.
					Technical skills level Technical design was difficult because we had to change the design depending on the availability of materials.	Difficulty in finding materials matching with specifications of the design (e.g. charge controller was too big)	Promote R&D.
					High Cost The product became expensive in the end.	only small portion is required, the cost for each item becomes more expensive. Need to waste a lot.	Need to buy in big portion.
					Slow Process Getting quotes and profoma invoices were difficult. Required a lot of negotiations.	Suppliers didn't want to give profoma because they were not sure it would become a real sales. The quote was only for a small portion.	Need to buy in big portion. Work together with private companies which has access to procuring necessary materials from abroad.
					Slow progress cannot make sure the project finishes on time. Time management.	Availability of assistance in welding and equipment is limited. Need to coordinate time. With other PU activities as well as teaching time Holiday is over, the time available from teachers are limited	Department should be in charge of "strategically" selecting, implementing and monitoring the activity, so that they can allocate necessary human resources to carry out a project.
						Mission allowance Require long process	Can we have a different procedures for approving mission allowances regarding PU activities?
						Transportation Require long process	Procure PU car?
	Briquette Training for Sorwathe (Martin)	I/G C/O	Training	PU prepared a proposal for Briquette training. Sorwathe showed interest yet they <u>decided not to proceed</u> in the end due to lack of fund.	Right Price setting Cost was too high No time for negotiation	Price setting needs to be reconsidered Need to advertise, PR so that the interested organizations would come You don't know their financial situations Potential customers don't know about the product technology very well	Need to learn how to promote a product/service, and how to negotiate.

AE	Nyakiriba Project (Kamanzi)	I/G	Service Provision	Nyakiriba phase II under TCT and ICRC toward completion, about <u>90% completed</u> . Set to be completed in week time from now. <u>Nyakiriba phase I was completed but during the phase II it collapsed</u> due to heavy rain. Still under negotiations with RCS to provide the material for repair.	<b>Slow progress/ Lack of flexibility</b> Delay in implementing project.	Procurement cannot be flexible, unexpected problems are there it takes too long procedure	Should select an activity which doesn't require much procurement. Need to find ways to cope with procurement issues, e.g. incorporating production activities in practical lessons, work together with private companies etc.
						Mission allowance Require long process	Can we have a different procedures for approving mission allowances regarding PU activities?
						Lack of motivation/cooperation from AE staff Mission allowance does not reflect what people do engagement of the work and allowance doesn't match cannot be a motivation	Department should be in charge of strategically selecting, implementing and monitoring the activity, so that they can allocate necessary human resources to carry out a project. <del>Need to create incentive system</del>
						No transportation	Procure PU car?
					<b>Slow progress/lack of flexibility</b> Delay in salary payment	process didn't go though and took too long to pay salary admin staff doesn't know much about the project too strict cannot be flexible though the project site conditions cannot be always strict, needs flexibility	Support from top management is required to have more flexible operation. If it is not possible, TCT should avoid conducting a project that requires too much administrative works.
						Lacking technical skills How to estimate the right quantity for a specific project Ability to predict necessary materials required for a certain project was lacking.	Need to select a project carefully. Before deciding to conduct a project, each department should determine its feasibility in terms of resources, time management, profitability etc.
	Other failed tender projects	(I/G)	Consultancy, Short-term trainings	Bided for tender but failed. (RDB, PSF, WDA, and FONERWA tenders)	<b>Cost effectiveness</b> There was a misuse of materials and financial resources.	Limited availability of the staff TCT teachers cannot be on site the whole time. TCT cannot know what's happening on the ground, or what materials technicians have used. There are no store keeper	
						You just go to a sight to find out that the problem is too little but lose money as TCT, mission allowance is paid	
						Getting documents are not easy Require cooperation from admin department, but the person in charge is not well aware of the project and thus cannot give a priority to process quickly. Even if you need a document, or petty cash etc. person in charge is not there	Support from top management is required to have more flexible operation. If it is not possible, TCT should avoid conducting a project that requires too much administrative works.
						Having 2 campuses communication between Kigali and Tumba takes too much time	
						<b>Slow preparation of documents</b> Documents were not properly developed in time.	Can we have a different procedures for approving mission allowances regarding PU activities?
						limited resources in terms of effective equipment(well functioning printers etc.) and means of transport	Need to plan well in terms of necessary equipment and its maintenance.
					<b>Poor planning</b> RDB – Couldn't hire necessary people in time Sometimes require specific person but time was not enough	Teachers do not have enough time to prepare necessary documents in time Not enough skills, lacking capacity to prepare necessary bidding documents (technical skills are there, but preparing a proper bidding documents require other skills)	Proposal making lectures/manuals? Need to consider division of labor or assigning a person who always takes care of preparing legal documents.
						HR cannot recruit or make contract with outside PPL with EWSA recommendation TCT can hire and make a separate contract	Plan ahead calls for expert and make a short list so that TCT can hire necessary proper when necessary
					<b>Poor planning</b> RDB – Couldn't hire necessary people in time Sometimes require specific person but time was not enough	HR cannot recruit or make contract with outside PPL with EWSA recommendation TCT can hire and make a separate contract	Plan ahead calls for expert and make a short list so that TCT can hire necessary proper when necessary
					<b>Technical skills level</b> FONERWA – proposals were not competitive enough	Inadequate skills for competitive proposals	need to see a successful contract
					<b>Other issues</b> (WDA/SDF) The proposal did not reach technical proposal evaluations it was lacking tax clearance due to irregularities from RRA records. Failure to prepare necessary documents in time	couldn't meet the requirements tax clearance form	need to clear all the debts



Annex 9 :  
Third Country Training Reports

# **Tumba College of Technology (TCT)**

## **Third Country Training Programme 2013: Report**

*- Production Unit & School Management -*

### **1. Background, TCT in Rwanda**

- TCT is a College of Technology, specialized in the fields of Alternative Energy, Electronics and Telecommunications, and Information Technology. The school was established in 2007 and has been receiving technical cooperation from JICA.
- The currently ongoing project is focusing on the capacity development of TCT in terms of (1) skills development through research and production activities, and (2) school management. A study visit to Kenya was planned in order to learn from the experience of advanced institutions within the region.

### **2. Objectives**

#### School Management:

1.1 To learn effective and efficient administrative management in the following areas and customize the good practices based on the TCT needs:

- HR (training needs assessment, attendance control, improve staff motivation, M&E system of staff performance)
- Career support for students  
(incubation center, job placement, career guidance, teachers' involvement)

#### Production Unit

1.2 To learn effective management and operations of PU both in terms of business advancements and research promotions

1.3 To learn marketable knowledge, technologies and innovations, and gain ideas for potential TCT PU services

### **3. Time & Duration**

November 18th – 22nd (5 days)

### **4. Institutions visited**

- JKUAT
- Technical University of Mombasa

## 5. Participants

### TCT Staff

1	Mr. NZITATIRA M.Wilson	Director of Administration and Human Resource Management.
2	Mr. KAMANZI Emmanuel:	Head of Production Unit, Lecturer in Alternative Energy Department
3	Mr. RUTAYISIRE Tonny	Lecturer in Information Technology Department, Incubation Center Coordinator
4	Mr. NSHIMIYIMANA Arcade	Assistant Lecturer, in Electronics and Telecommunication

### JICA Project Member

1	Ms. Erika Asada	Expert in charge of School Management
2	Ms. Nana Kondo	Expert in charge of Production Unit

## 6. Schedule

	School Management	Production Unit
18th	Kigali (9:10) → Nairobi (11:40) <b>KQ471</b> PM: Visit <b>JKUAT</b> (Obj. 1.2) <ul style="list-style-type: none"> <li>Research, Production &amp; Extension Division (RPE)</li> <li>RPE – Directorate of Extension and Technology Transfer</li> </ul>	
19th	Whole day: Visit <b>JKUAT</b> (Obj. 1.1) <ul style="list-style-type: none"> <li>Admin Office</li> <li>HR Department</li> </ul>	Whole day: Visit <b>JKUAT</b> (Obj. 1.2) <ul style="list-style-type: none"> <li>RPE – Directorate of Linkages</li> <li>RPE- Directorate of Production</li> <li>RPE – Directorate of Research Services</li> <li>Sorghum Value Chain Development Consortium (SVCD)</li> <li>Engineering Workshop, College of Engineering and Technology</li> </ul>
20th	Nairobi (9:45) → Mombasa (10:45) <b>KQ604</b> Afternoon: Visit <b>Uni. Of Mombasa</b> (Obj. 1.1) <ul style="list-style-type: none"> <li>HR Department</li> <li>Admin Office</li> <li>Office responsible for career support (apart from incubation center)</li> </ul>	Whole day: Visit <b>JKUAT</b> (Obj. 1.3) <ul style="list-style-type: none"> <li>Institute of Energy &amp; Environmental Technology</li> <li>Department of Telecommunication and Information Engineering</li> </ul> Nairobi (18:00) → Mombasa (19:00) <b>KQ620</b>
21st	Whole day: Visit <b>Uni. Of Mombasa</b> (Obj. 1.1&1.2) <ul style="list-style-type: none"> <li>Institute of Research, Innovation and Extension</li> <li>Business Incubation Center (Creative Lab under Dept. of Electrical and Electronics Engineering))</li> <li>Department of Electrical and Electronics Engineering</li> <li>Department of Computing and Information Technology</li> <li>Enterprises Unit</li> </ul>	
22 <sup>nd</sup>	Mombasa (14:55) → Nairobi (15:55) <b>KQ609</b> Nairobi (18:20) → Kigali (18:50) <b>KQ474</b>	

## 7. List of interviewees: JKUAT

	Department/Unit	Interviewees
1	<b>Research, Production &amp; Extension Division (RPE)</b>	<ul style="list-style-type: none"> <li>• Dr. Esther Murugi KAHANGI, Deputy Vice Chancellor, Research, Production &amp; Extension (PRE)</li> <li>• Dr. David KAGIMA, Director of Extension &amp; Technology Transfer Directorate</li> <li>• Dr. Mwikamba KAIBUI, Director of Linkages</li> <li>• Dr. Samuee MOKAYA, Director of Production</li> </ul>
2	<b>RPE - Directorate of Extension and Technology Transfer</b>	<ul style="list-style-type: none"> <li>• Dr. David KAGIMA, Director</li> </ul>
3	<b>RPE - Directorate of Linkages</b>	<ul style="list-style-type: none"> <li>• Dr. Mwikamba KAIBUI, Director</li> </ul>
4	<b>RPE - Directorate of Production</b>	<ul style="list-style-type: none"> <li>• Dr. Samuee MOKAYA, Director</li> </ul>
5	<b>RPE - Directorate of Research Services</b>	<ul style="list-style-type: none"> <li>• Dr. Catherine NGANAU, Junior Research Fellow</li> <li>• Mr. Peter OGSHI, Assistant Research Fellow</li> </ul>
6	<b>Sorghum Value Chain Development Consortium (SVCDC)</b>	<ul style="list-style-type: none"> <li>• Mr. Relws KIOKO, CEO</li> <li>• MR. Alex NYAGO, Business Development Manager</li> <li>• Dr. Willis OWINO, TAC member</li> </ul>
7	<b>Engineering Workshop, College of Engineering and Technology</b>	<ul style="list-style-type: none"> <li>• Dr. Peter K. KIHATO, Head of Engineering Workshop</li> </ul>
9	<b>IEET(Institute of Energy &amp; Environmental Technology)</b>	<ul style="list-style-type: none"> <li>• Dr. Paul M. NJOGU, Research Fellow (Environment)</li> <li>• Mr. Francis NJOKA, Senior Research Technologist (Energy)</li> <li>• Mr. Yuji OTAKE, Chief Advisor, JICA Bright Project</li> <li>• Ms. Yukari YOSHIDA, Project Coordinator, JICA Bright Project</li> </ul>
10	<b>Department of Telecommunication and Information Engineering</b>	<ul style="list-style-type: none"> <li>• Dr. Kibet LANGAT, Chairman and Lecturer</li> </ul>
11	<b>Registrar</b>	<ul style="list-style-type: none"> <li>• Mr. Anthony M. Kiswii, Ag. Registrar (Academic Affairs)</li> </ul>
12	<b>Human Resource department</b>	<ul style="list-style-type: none"> <li>• Mr. Ephreum Mungai, Deputy Registrar (HR)</li> <li>• Dr. Jane Ngethe, Senior Assistant Registrar (HR)</li> </ul>
13	<b>Directorate of Performing Contracting and Appraisal</b>	<ul style="list-style-type: none"> <li>• Dr. John M. Wesonga, Director, Directorate of Performing Contracting and Appraisal</li> </ul>

## 8. List of interviewees: TUM

	Department/Unit	Interviewees
1	Registrar	<ul style="list-style-type: none"><li>Dr. Joseph Obwogi, Registrar (Administration &amp; Planning)</li></ul>
2	Human Resource Management department	<ul style="list-style-type: none"><li>Mr. Joshua Enane Amwayi, Senior Human Resource Officer</li><li>Mr. David Mwakidimi, Human Resource Officer</li></ul>
3	IRIE – Institute of Research, Innovation and Extension	<ul style="list-style-type: none"><li>Dr. Charles Mboya MATOKA, Director</li></ul>
4	Business Incubation Center (Creative Lab under Dept. of Electrical and Electronics Engineering)	<ul style="list-style-type: none"><li>Aggrey SHITSNKANE, Senior Technician</li></ul>
5	Department of Electrical and Electronics Engineering	<ul style="list-style-type: none"><li>Dr. Michael J. SAULO, Chairperson of the Department</li><li>Nzoyuki MUSAU, Technician (Electrical Workshop)</li><li>Juma K. JORAM, Technician (Telecom Workshop)</li></ul>
6	Department of Computing and Information Technology	<ul style="list-style-type: none"><li>Mr. Mutuku NGAO, Chairperson of the Department</li><li>Charles KINGOO, Senior Technician (Computer Lab)</li></ul>
7	Enterprises Unit	<ul style="list-style-type: none"><li>Ms. Alice OLDHE, Acting Managing Director</li></ul>

## 9. Findings

(1) School Management: See Attachment 1

(2) Production Unit: See Attachment 2

Main findings related Production Unit management are as follows;

a. Strong research “coordination” bodies within institution

Practices in Kenya:

- At both institutions, considerable efforts were observed to install strong research “coordination” units, i.e. RPE in JKUAT and IRIE in TUM. These units do not conduct any research or production activities by themselves, but give guidance and supervisions to departments in forms of regulations & guidelines, funding information, and necessary assistance.
- It is important to strengthen such “coordination” function, since, as an institution, the quality of research has to be controlled to meet certain standards. Also, having a coordinating unit can reduce duplication of administrative work among different departments and improve the efficiency of research related activities. For instance, some research

related activities, such as research fund promotion and marketing events, can be conducted more efficiently if organized by a single unit, rather than organized separately by different departments.

Applications for TCT:

- RDPU can concentrate on coordination and management of RDP activities within TCT, while actual implementation of projects can be taken care of at department levels.
- Though the actual implementations happen within departments, RDPU should provide a clear guideline to ensure the quality of RDP activities as a whole, and at the same time it should also establish various means to encourage TCT academic staff to participate in RDP activities.

b. Emphasis on "research"

Practices in Kenya:

- Both institutions put considerable efforts to strengthen their research support systems, recognizing that research is the foundation of all the other important activities, including R&D, product development and consultancy services.

Applications for TCT

- Though the levels of research required in TCT and that of JKUAT and TUM are different, it is crucial to strengthen research based approach within TCT in order to improve its quality, i.e. examining assumptions, conducting experiments, and repeating the process of trial-and-error.
- Since the research experience is limited in TCT, RDPU should provide research guidance to TCT academic staff, determining the levels of research required within TCT, expected outputs as well as research procedures.

c. Availability of funds

Practices in Kenya:

- In order to promote research within the institutions, both JKUAT and TUM provide research funds utilizing school budget. At the same time, the research coordination units of both institutions provide information on external funds available for research and encourage academic staff to apply for such funds.

Applications for TCT:

- Combining the efforts to promote research, described in b. above, TCT can set up research/innovation funds for its academic staff. In this process, RDPU has to make a clear application guideline, specifying criteria, research procedures, and monitoring & evaluation policy.
- When developing such guideline, RDPU has to work closely with the administrative unit, in order to clarify fund implementation procedures.

d. Effective use of monetary and non-monetary incentives

Practices in Kenya:

- Both monetary and non-monetary incentives are used to encourage RDP activities. Monetary incentives are used in consultancy and production activities. There is a clear guideline on how the generated income is distributed between the college and academic staff involved in the project.
- In case of research, non-monetary incentives are working effectively. e. Also, research is related to their promotion. Their promotion is subjected to the numbers of publications they have made, and also the number of masters and PhD students they have supervised.

Applications for TCT:

- Firstly, TCT has to start implementing the newly developed staff incentive policy to encourage RDP activities.
- At the same time, RDPU has to work closely with HR department to link RDP activities with staff performance evaluation.

e. Student innovations

Practices in Kenya:

- Various innovative approaches are observed to encourage students' innovations. Both institutions have student targeted fund to encourage innovations by students. Students are monitored and supervised by academic staff, both in terms of research and funds utilization, in order to endure the quality of research.
- Also, showcasing events are conducted to exhibit students' innovations. Industries are also invited to judge the products. In case of JKUAT, the best prize gets support from the university to incubate the product. Industry also helps to incubate students by taking them into the labs in town. Some students even get recruited at such event.

Applications for TCT:

- TCT can set up innovation funds for students, linking students' final year projects. Similar to research funds for TCT academic staff, RDPU has to make a clear guideline for the usage of this fund.
- In order to combine with carrier support, RDPU can conduct an event to showcase and prize students' innovations. External partners should be invited to judge the products.

## **10. Attachments**

Attachment 1: Mission Report by HR Director

Attachment 2: Mission Report by RDPU Director and RDPU Members



**Tumba College of Technology**  
**P.O. Box 6638 Rulindo**  
**Tel: (250) 784501514/5/6**  
**Northern Province**  
**Website: [www.tct.ac.rw](http://www.tct.ac.rw)**

## REPORT ON

### A STUDY TOUR HELD AT JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY AND TECHNICAL UNIVERSITY OF MOMBASA IN THE REPUBLIC OF KENYA FROM NOVEMBER 18<sup>th</sup> to 22<sup>nd</sup> 2013

#### I. Introduction

Strengthening the School management of Tumba College of Technology is one of three outputs of the JICA TCT Project phase II. This is done through different approaches including organizing study tours. It is in that context that a study tour was organized from November 18<sup>th</sup> to 22<sup>nd</sup> 2013 at two Kenyan Higher Learning Institutions respectively Jomo Kenyatta University of Agriculture and Technology (JKUAT) and Technical University of Mombasa (TUM).

#### II. Objective of the Study

The purpose of the tour was to learn from the two hosting Universities best administrative and managerial practices and customize them based on the TCT needs:

#### III. Brief description of the hosted Universities

The two visited Universities are Public. The table below gives a brief overview of the two hosted Universities

	<b>JKUAT</b>	<b>TUM</b>
Year of Establishment	<ul style="list-style-type: none"> <li>○ 1981 as middle level College</li> <li>○ 1988 became a constituent College of Kenyatta University</li> <li>○ 1994 became a full-fledged University. Since then the University has grown and now it has campuses in Tanzania, Nigeria and Rwanda</li> </ul>	<ul style="list-style-type: none"> <li>○ Established in 1940 as Mombasa Institute of Muslim Education</li> <li>○ August 2007, the Institute became a Polytechnic University College (MPUC) under the mentorship of JKUAT</li> <li>○ Elevated at University level in January 2013</li> </ul>
No of Students	35,000	7,391
No of Staff	2,000	650



#### IV. Focused areas of the visit

The visit focused on the following specific administrative and managerial areas such as recruitment and Induction, Training and Development, Performance Management system, Motivation and Retention, Staff attendance and Absenteeism Control.

#### V. Findings of the study visit

Area	JKUAT	TUM
<b>Recruitment</b>	<ul style="list-style-type: none"><li>Both external and internal recruitment are allowed.</li><li>For teaching staff the University recruits its best students and hires them on contract basis for two years, after this period the university assess their performance once found competent the university pays for their further studies.</li><li>The University is autonomous and its management is not bound by the Public Service regulations</li></ul>	Recruitment is mostly done externally. This is due to the fact the University is young.
<b>Induction</b>	<ul style="list-style-type: none"><li>The HR Department organizes an induction for new recruits where it provides the general overview of the University.</li><li>The Department has a checklist of what information to be provided</li><li>After the general induction by the HR Department, the HR Department hands over new staff to their respective Departments for technical orientation</li></ul>	<p>The HR Department organizes an induction for new staff. General information is provided</p> <p>The top management comes to brief the new comers for the vision and values of the University</p>
<b>Training and Development</b>	<ul style="list-style-type: none"><li>Training and Development is one section of the Academic Services Division</li><li>The University allocates a proportion amount of its budget for capacity building</li><li>The University sends its technical staff to local industries for training purposes</li><li>The university organizes internal workshops for its staff for knowledge</li></ul>	The University is currently developing policies regarding training

	<p>sharing</p> <ul style="list-style-type: none"> <li>• The University waives tuition for its Staff undertaking further studies</li> </ul>	
<b>Performance Management system</b>	<ul style="list-style-type: none"> <li>• Performance contracts come from strategic plan. In other words Performance Contract is a tool of implementing the Strategic Plan</li> <li>• The University has a special directorate which deals with Performance Contract</li> <li>• There are two types of Performance Contracts: Institutional and Individual</li> <li>• The process of performance Contract follows six phases: <ol style="list-style-type: none"> <li>1. Drafting of performance contracts: The University prepares a draft of contract based on performance contracts guidelines issued by the Government</li> <li>2. Negotiation of performance Contract: The University negotiates the draft contract with the with parent ministry. During the negotiations the University and the Ministry agree on the performance indicators, the weights assigned to the indicators, the targets for the indicators and the units of measurement.</li> <li>3. Vetting of the Performance contracts: This is done by the Department of Performance Contracting in the Ministry of Devolution and Planning. At this stage the negotiated contracts are checked for compliance with the guidelines provided.</li> <li>4. Signing of performance contracts: After vetting, the final performance contracts are prepared for signing.</li> <li>5. Monitoring: The University prepares and submits quarterly reports to the government to show the progress in meeting the targets. A final report is submitted at the end of the year.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>• The Performance Management falls under the Section of Planning</li> <li>• Performance contracts are signed only from Vice Chancellor up to the heads of Departments. Staff do not sign performance contracts but rather are given tasks to perform by the line supervisor.</li> <li>• Like at JKUAT the Performance contracts come from the Strategic Plan and the Government issues at every year Performance contract guidelines.</li> <li>• The preparation, monitoring and evaluation undergoes the same process like JKUAT</li> </ul>

	<p>6. Evaluation: An evaluation is prepared at the end of the year. The evaluation is based on achievement against set targets. Scores and weights are computed based on the achievement, targets. All achievement are validated using evidence submitted</p> <ul style="list-style-type: none"> <li>• 50% of the performance evaluation of individual staff is done based on achievements against the targets set in their performance contract, while the rest of 50% is done based on feedback from 5 stakeholders on the soft skills of the individuals, which is handled by the Directorate of Administration and Human Resource Management.</li> <li>• The HR Department assess only the soft skills of the employees using 360 degree feedback technique</li> <li>• Effects of performance appraisal: The performance outputs affect directly the University as it is a tool of budget allocation and Institutional ranking.</li> <li>• At individual level , the performance results are used for decision making purposes such as new appointments and training</li> </ul>	
<b>Motivation and Retention</b>	<ul style="list-style-type: none"> <li>• As mentioned earlier, the University has administrative and Financial autonomous. Thus the University provides its staff with various incentives which attract and help in retaining its employees. Among them : Topping up personal medical contribution and covering medical expenses in case of transfer</li> <li>• Waiving tuition fees for its staff and their children (up to 4 children) undertaking studies within the University</li> </ul>	<ul style="list-style-type: none"> <li>• The University takes care of medical expenses for its staff</li> <li>• The University waives tuition fees for its staff who undertakes further studies</li> </ul>

	<ul style="list-style-type: none"> <li>• Primary education for JKUAT employee's children</li> <li>• The University provides also reasonable accommodation allowances to its staff.</li> </ul>	
<b>Staff attendance and Absenteeism Control</b>	<ul style="list-style-type: none"> <li>• Non- academic staff have to register their attendance at every working day. This is done by registering their presence in the attendance registration book</li> <li>• The University uses a staff movement form advice to ensure the exact date when the staff started his leave and the exact date of return.</li> <li>• The University is planning to have an electronic attendance control system</li> <li>• Academic staff are not requested to be at the University when they don't have classes. However they are required to carry out research. The University cannot control what the academic staff are doing other than the class hours. However, research publication will prove that they do work or not.</li> <li>• Academic staff have to avail themselves for students consultation. Thus the University has come up with Lecture-Student's consultation form where at every consultation the Lecture and students sign on that form for reference purpose.</li> </ul>	The University controls staff attendance through CBA ( Collective Bargaining Agreement) This is a contract with Staff Union which provides among others the working modalities and punishment on breaking of any provision of the CBA

## **VI. Recommendation**

Learning best practices is one thing and their adaptations are another thing. This is due to other factors such as different legal systems, culture, policies from a country to another. In view of the above findings, Tumba College of Technology can copy and implement some best practices. These can include:

1. Think of various staff motivation with much emphasis on non-monetary reward : This may increase its employee's motivation thus reduce the turnover rate
2. Sending its technical staff for industrial attachment: This may be by looking for partnerships with other technical Institutions and industries within the country. With this approach staff can gain more technical skills and updated technologies and may help him/her in delivering his/her courses
3. Using internal workshop: This can be done by using its own Human Resource where for instance knowledgeable staff can train their colleagues on certain areas of their expertise. The College can also invite the outside experienced people to come and train its staff on certain topics
4. Sensitisation on performance contracts up to lower level: This increases the level of ownership by all concerned staff
5. Performance evaluation of an academic staff is linked with students evaluation
6. The individual has to set new 5 targets each year
7. Put in place different internal policies to guide institutional operations such as Financial, Safety, Gender, Social assistance, etc.
8. To put in place a mechanism of monitoring what an academic staff is doing outside the classes rather than only basing on their attendance at work

## **VII. Conclusion**

The visit has not only provided me the opportunity of learning best practices but also the exposure to another part of the world was a good opportunity. I am very thankful to both Tumba College of Technology and the JICA TCT Project for having offered me this occasion.

**Date: November 27<sup>th</sup> 2013**

**Name: NZITATIRA Wilson**

**Director of Administration and Human Resource Management**

## MISSION ABROAD REPORT TEMPLATE

Attachment 2

<b>1</b>	<b>Names and post of the person who went in a mission</b>	<p>Name: KAMANZI Emmanuel</p> <p>Post: Director Research, Development and Production Unit</p> <p>Name: Rutayisire Tonny</p> <p>Post: Research, Development and Production Unit Member/Incubation Center Coordinator</p> <p>Name: Arcade NSHIMIYIMANA</p> <p>Post: Research, Development and Production Unit Member/Assistant Lecturer</p>
<b>2</b>	<b>The Institution that requested for the mission</b>	Tumba College of Technology
<b>3</b>	<b>Time for the mission</b>	From November 18 to 22, 2013 (5days)
<b>4</b>	<b>Place of the mission</b>	<p>Kenya</p> <ul style="list-style-type: none"> <li>• Jomo Kenyatta University of Agriculture and Technology (JKUAT)</li> <li>• Technical University of Mombasa (TUM)</li> </ul>
<b>5</b>	<b>The expected outcome of the mission</b>	<ul style="list-style-type: none"> <li>• To learn effective management operations of production unit in terms of business advancements and research promotions</li> <li>• To learn marketable knowledge, technologies and innovations, and gain ideas for potential TCT production services.</li> <li>• To benchmark with the ideal setting of an incubation center</li> <li>• To learn effective management operations of an incubation center</li> </ul>

6	Key outputs of the mission	<p><b>1. JKUAT: Research, Production and Extension Division (RPE)</b></p> <ul style="list-style-type: none"> <li>RPE is composed of 4 directorates <ol style="list-style-type: none"> <li>Directorate of Research Services</li> <li>Directorate of Production</li> <li>Directorate of Extension and Technology Transfer</li> <li>Directorate of Linkages</li> </ol> </li> <li>RPE operates as a “coordination body” to guide concerned departments engaged in research, innovation and production activities. RPE provides a policy, manuals and guidance, but the actual implementation of work is done by a concerned department.</li> <li>JKUAT productions and innovations are all based on their research activities, i.e. “product of a research”. It was emphasized that an institution has to have a strong research capacity in order to have a production, since products based on research is what makes a product unique.</li> </ul> <p><u>Challenges:</u></p> <ul style="list-style-type: none"> <li>Research is conducted using teaching equipment and facilities. Researchers therefore have to work closely with concerned departments to come up with a facility usage plan. Also, many of the facilities are getting old.</li> <li>Procurement process is very slow. In order to solve this problem, RPE is now preparing to set up a Procurement Committee, which exclusively takes care of research related procurements.</li> </ul> <p><u>Advice to TCT RDPU:</u></p> <ul style="list-style-type: none"> <li>TCT RDPU should not be made to be the one to do the actual work, as it is too heavy to do everything. Rather, RDPU needs to encourage academia and students to come up with ideas. RDPU should remain as a coordinator and give guidance.</li> </ul>
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		<ul style="list-style-type: none"> <li>• TCT as an academic and a research institute, RDPU should promote a component of research in the process of production and innovation. Research will be a better learning experience for both academia and students, and the product will become more unique.</li> </ul> <p><b>2. JKUAT: RPE- Directorate of Research Services</b></p> <ul style="list-style-type: none"> <li>- Research is highly regarded in JKUAT</li> <li>- It is the basis of all the innovation and production in JKUAT</li> <li>- Therefore it is heavily funded with a total annual budget close to 1.1 billion KSH.</li> <li>- This budget comes from 3 main sources:</li> <li>- 40 million KSH worth of research grant from the university budget</li> <li>- 150 million KSH from the National Commission for Science &amp; Technology</li> <li>- 800 million KSH from International agencies</li> <li>- Annually, after acquiring the research budget, RPE announces a call for research proposals.</li> <li>- The call for research proposals is directed to vital areas of national interest.</li> <li>- Interested academia will submit their research proposals to RPE</li> <li>- RPE will then send the proposals to a reviewing committee which makes a critical evaluation.</li> <li>- Comments from the reviewing committee are then sent to the senate sub-committee in charge of research and innovation.</li> <li>- Depending on the available budget, the senate sub-committee will select the proposals to be funded</li> <li>- The researchers for selected proposals can then start accessing research funds</li> </ul>
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		<ul style="list-style-type: none"> <li>- Maximum amount allocated to a single proposal is 4.5 million KSH</li> <li>- Maximum duration for any research project is 3 years</li> <li>- Researchers access funds in three installments depending on progress</li> <li>- Research findings are disseminated through the proceedings of a scientific conference that is hosted by JKUAT every year.</li> <li>- Some selected research papers are also published in JKUAT journal called “Journal for agriculture, science and technology” which runs twice in a year.</li> <li>- All academia in JKUAT are encouraged to do research, after all their promotion depends on the number of publications to one’s name.</li> </ul> <p><b>3. JKUAT: RPE- Directorate of Production</b></p> <ul style="list-style-type: none"> <li>• The Directorate of Production deals with an upscale of research results and innovations. What came out of a research and/or innovation projects is taken into a production process to make them become a market product.</li> <li>• The unit of production under RPE of Jomo Kenyatta University is responsible for coordination of production activities and income generating activities.</li> <li>• Production activities are research based. The university research findings are given to the production unit for product realization and later put to market through the department of linkages.</li> <li>• The production unit is made of production centers based on specialty, like: <ol style="list-style-type: none"> <li>1. Chemistry production center,</li> <li>2. Food technology center,</li> </ol> </li> </ul>
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		<p>3. The center for innovation,</p> <p>4. Bio technology research /banana product</p> <p>5. Income generating centers etc.</p> <p><u>Responsibilities of production unit</u></p> <ul style="list-style-type: none"> <li>• Coordinate production activities</li> <li>• Innovations activities</li> <li>• Commercialization of engineering products very challenging for the university and through linkages department product are put to market under partnerships with industries.</li> </ul> <p><u>Challenges</u></p> <ul style="list-style-type: none"> <li>• Delays due to procurement procedures.</li> <li>• 20 million every year by university for innovation, the funds are not enough for the demand available</li> <li>• Screening of proposals becomes difficult due to stiff competition.</li> </ul> <p><u>Directorate of Production and company</u></p> <ul style="list-style-type: none"> <li>• In product unit of the university there exist a company but it has not been doing well since. The reason, the income generating units/teaching staff looked at the company like competitor from the beginning and as result the company could not get involved in the business as it had no support from the units. However, the company now is getting up as the units have understood its aim and objectives - to have most of their innovation and products commercialized by production unit of the university to maximize the profit.</li> <li>• Example of product the company has put to market even cross borders is banana plant.</li> <li>• Production with student more profitable than any other as they more motivated to come up with</li> </ul>
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		<p>new things</p> <p><u>Consultancy</u></p> <ul style="list-style-type: none"> <li>• Consultancy activities through departments are very active for example architectural department have acquired a big contract to design for the Pan African university buildings and civil engineering department acquired the supervision for construction of the complex.</li> </ul> <p><u>Recommendations to TCT</u></p> <ul style="list-style-type: none"> <li>• Establish good collaboration with technology related industries.</li> <li>• University mandate is not to commercialize the product that is why industry collaboration is needed.</li> <li>• Community support is done without profit target where possible</li> </ul> <p><u>Example of Products</u></p> <ol style="list-style-type: none"> <li>1. Blocks for construction</li> <li>2. Tricycle – subcontracting companies to make a product</li> <li>3. Yoghurt</li> <li>4. Soap</li> <li>5. Perfume</li> <li>6. Shoe polish</li> </ol> <p><b>4. JKUAT: RPE- Directorate of Linkages</b></p> <ul style="list-style-type: none"> <li>• JKUAT values collaborations after all it is a product of successful collaboration between the governments of Kenya and japan.</li> <li>• The collaboration with japan jumpstarted JKUAT and yielded impressive results in terms of staff</li> </ul>
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		<p>capacity enhancement, adoption of ethical best practices and acquisition of state-of-the art equipment.</p> <ul style="list-style-type: none"> <li>• To sustain the tradition of collaboration, JKUAT established a fully-fledged directorate of linkages working under the division of Research, Production &amp; extension.</li> <li>• The directorate is responsible for linking JKUAT with any external entity deemed fit to enter into collaboration with.</li> <li>• Collaboration could be initiated by JKUAT or by an external entity, but whichever way, it is channeled through the directorate of linkages.</li> <li>• Collaboration could be based on academics, research, innovation, production and commercialization exchanges.</li> <li>• The directorate is the custodian for the linkage policy that guides JKUAT collaborations with other institutes and it makes a critical assesement to see if the other entity fulfills all the requirements stipulated in the policy.</li> <li>• Once collaboration is possible, the linkage department prepares an MOU and all the necessary legal documents to be signed between the external institution and the concerned JKUAT unit.</li> <li>• The directorate also follows up the progress of the collaboration in case there are any issues to be resolved during the period of the collaboration.</li> <li>• The main challenge faced with the directorate of linkages is that of absolute collaborations where institutions show a lot of enthusiasm while trying to establish collaboration and all of the sudden the spirit dies.</li> </ul> <p><u>JKUAT COLLABORATIONS</u></p> <ul style="list-style-type: none"> <li>• Currently, JKUAT has got 150 external collaborations that fall into different categories:</li> </ul>
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		<ul style="list-style-type: none"> <li>• JKUAT establishes collaborations with middle-level colleges and institutions in order to build their capacity. Some of these colleges actually offer JKUAT programs which builds their reputations. Some of them have even grown into fully-fledged universities.</li> <li>• JKUAT also establishes collaborations with fully-fledged universities (local, regional &amp; international) for students and research exchange programs.</li> <li>• Collaborations are also established with research institutions for joint-research projects as well as students' placement.</li> <li>• JKUAT has got strong ties with government agencies for consultancies and capacity building</li> <li>• Collaborations are established with donor agencies that to a great extend fund research projects and other special programs such as community trainings for women.</li> <li>• Lastly but not least, JKUAT keeps strong ties with the industry for curriculum development, industrial attachment placement, joint-research projects and commercialization of JKUAT products.</li> </ul> <p><b>5. JKUAT : RPE/ extension and technology transfer</b></p> <ul style="list-style-type: none"> <li>• The extension and technology transfer is one of the RPE division and its main function is to take the production or technology/ knowledge to the end user.</li> <li>• Example of the product they have extended to the users is tricycles which are able to carry different objects and have been developed in JKUAT. Also through Tech expo, where undergraduate students showcase their innovation and different companies are called for evaluation, the winners are incubated in JKUAT in order to come up with a product which will be extended to the users.</li> </ul>
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		<ul style="list-style-type: none"> <li>• In the directorate of extension and technology transfer, they have the following activities: Shows, exhibition, tech expo and conferences like campuses exhibition on behalf of the university.</li> <li>• Many researches have been going on with a challenge of the funding. Some of the consultancies are: <ol style="list-style-type: none"> <li>1. Training of trainees (especially women)</li> <li>2. Approaching community by needs</li> <li>3. Revising the curriculum depending on the community needs/ updating the curriculum</li> </ol> </li> <li>• Example of community work, Radio and TV shows up for short time (what the university is doing) it passes through Kenya Broadcasting company for 1h30 on KBC TV.</li> <li>• They provide school visits with no limit and nonprofit which makes students to be interested in the university.</li> </ul> <p><b>6. JKUAT: Institute of Energy &amp; Environmental Technology</b></p> <ul style="list-style-type: none"> <li>• The Institute of Energy and Environmental technology was established in 1990 to carry out research and training in energy and environmental technologies.</li> <li>• The establishment of the Institute arose from the felt need for rational management of energy, natural resources and the environment at large.</li> <li>• The institute is offering postgraduate Programs: <ol style="list-style-type: none"> <li>1. Master of Science in Energy Technology (MSc. ET)</li> <li>2. Master of Science in Environmental Legislation and Management (MSc. ELM)</li> <li>3. Master of Science in Occupational Safety and Health (MSc. OSH)</li> <li>4. Postgraduate Diploma in Occupational Safety and Health (PgD-OSH)</li> </ol> </li> </ul>
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		<p><u>Short courses (certificates)</u></p> <ol style="list-style-type: none"> <li>1. Environmental Impact Assessment and Environmental Audit (EIA/EA)</li> <li>2. Occupational health, safety and environment</li> <li>3. Biogas energy technology</li> <li>4. Cleaner production, pollution and waste management</li> <li>5. Solar energy technology</li> <li>6. Environmental leadership programmes</li> <li>7. Energy management</li> <li>8. Wind energy technology</li> </ol> <p><u>IEE Staff</u></p> <ol style="list-style-type: none"> <li>1. Director</li> <li>2. Research Fellows (5 staff)</li> <li>3. Assistant Research Fellows (1 staff)</li> <li>4. Senior Technologists (2 Staff)</li> <li>5. Front office &amp; Administration (4 Staff Senior Administrator, Secretary, 2 Massagers)</li> <li>6. Support Staff (2 staff)</li> </ol> <p><u>Bright project</u></p> <ul style="list-style-type: none"> <li>• The project is a technical cooperation between JKUAT and JICA for capacity development by promoting rural electrification using renewable energy in collaboration with other stakeholders.</li> <li>• Project operation <ol style="list-style-type: none"> <li>1. Project budget( JICA)</li> <li>2. Involves all university departments(Mechanical, Civil, Electrical, science , physics etc)</li> </ol> </li> </ul>
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		<ol style="list-style-type: none"> <li>3. Through research activities, develop materials and methodologies for education</li> <li>4. Short term trainings programs(Programs for industry people like- Gov't officers, TOT etc)</li> <li>5. Trainings and certifications of energy companies</li> <li>6. Curriculum development together with energy associations</li> </ol> <ul style="list-style-type: none"> <li>• Potential projects under research are: <ol style="list-style-type: none"> <li>1. Wind energy, wind turbine from the informal sector have a number of drawback that need attention not to distorted the technology. The project acquired some of the manufacture turbine for improvement in collaboration with manufactures so that they can meet the market standard as well as increase their efficiency and reduce the drawbacks.</li> <li>2. Solar PV , research on both solar water heater has been initiated to generate steam for power production however the result are not yet obtained but expecting good return out of it.</li> <li>3. Biogas technology, research on biogas feeding material especially sea weed has been positive. This research is based on plastic bag digester which are manufacture in Kenya, it's easy means of installation will reduce the cost of the tradition cost as well as locally manufactured product will help in dissemination of the technology.</li> <li>4. Biomass/ rice husks for gasification to generate electric power. The grassfire has been developed as well as turbine blades, this project will be the second to wind project</li> </ol> </li> </ul> <p><b>7. JKUAT: Department of Telecommunication and Information Engineering</b></p> <ul style="list-style-type: none"> <li>• The department conducts researches and performs consultancies within the country as well as trainings which can generate income to the University.</li> <li>• The department is equipped with new technology based devices and equipment</li> </ul>
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		<ul style="list-style-type: none"> <li>• Recently, the department received state-of-the-art telecommunication equipment from SAFARICOM.</li> <li>• The production is done by both students and staff through research and innovation and they have a budget to do those activities. Best projects of students are taken into incubation for further production (each student is given 10,000 shillings for final year project)</li> <li>• They have good collaboration with companies and other organizations/ institutions whether public or private which helps them to find attachments for their students and many different cooperation like teaching and curriculum development based on the society/ country needs.</li> <li>• They compete in proposal writing for international grants</li> <li>• They participate in Tech Expo and perform well</li> <li>• They register (patent) all their products (research products)</li> </ul> <p><b>8. JKUAT: School of Engineering</b></p> <p>Workshop Technology</p> <ul style="list-style-type: none"> <li>• The workshop are under the school of engineering and they range from carpentry, masonry, foundry to mechanical tools and machines, each unit of workshop is used by respective department as well as anyone who needs the services from that workshop. It is headed by chief engineer who is responsible for all activities of the unit as well planning and operations of the workshop.</li> </ul> <p>The chief engineer is assisted by the senior technologist of the unit who is also assisted by technicians in the different units.</p> <p><u>Sample product</u></p>
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		<ol style="list-style-type: none"> <li>1. Block machine for construction bricks</li> <li>2. Tricycle that is still under development for commercial stage</li> <li>3. Backed turbine</li> <li>4. Small tractors for agriculture</li> </ol> <ul style="list-style-type: none"> <li>• The workshops are equipped with all necessary machines and tools as well as staffing. When you look at the workshops, they are heavily equipped with machines however with old machines and tools but still serve the purpose.</li> </ul> <p><b>9. Technical University of Mombasa: Institute of Research, Innovation and Extension</b></p> <ul style="list-style-type: none"> <li>• The institute of Research, Innovation and extension of TUM is newly establish 30th, 01,2013 to coordinate research and innovation activities. However, even before, the institute used to have innovation fund to carryout innovations with in the university.</li> </ul> <p>Functions:</p> <ol style="list-style-type: none"> <li>1. Find funds and coordination</li> <li>2. Distribution of research funds</li> <li>3. Finding opportunities for research and funding</li> <li>4. Proposal review</li> <li>5. Project monitoring</li> </ol> <p>Staffing</p> <ol style="list-style-type: none"> <li>1. Director</li> <li>2. Deputy Director</li> </ol> <p>Staff in charge of innovations</p>
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		<ol style="list-style-type: none"> <li>1. Protection and patent officer</li> <li>2. Document officer</li> <li>3. Skills examining officer</li> <li>4. Patent examining officer</li> </ol> <p>Other supporting staff required</p> <ol style="list-style-type: none"> <li>1. Staff to monitor projects</li> <li>2. Staff for proposal writing</li> </ol> <p>Reviewers (In-kind support)</p> <p>Funds available</p> <ul style="list-style-type: none"> <li>• Research fund <ol style="list-style-type: none"> <li>1. Research fund with ceiling of 1.5 million for each project</li> <li>2. Departmental project with ceiling of 1million</li> <li>3. Project from section up to 250,000Shillings</li> </ol> </li> <li>• Innovation fund <ol style="list-style-type: none"> <li>1. The fund can be much as 50,000 khs but each student will require a mentor who will be responsible for the use of money to the intended work. In case of mismanagement of the fund, all the money will be deducted from his or her salary.</li> </ol> </li> <li>• Example of funded project <ol style="list-style-type: none"> <li>1. 3 phase maize grinding machine (Torque controller)</li> <li>2. Mobile phone charger using weight applied on choose while working</li> <li>3. Algea used for die or making of machine fuel</li> </ol> </li> </ul>
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		<p><b>10. Technical University of Mombasa: Business Incubation Center</b></p> <ul style="list-style-type: none"> <li>• The incubation center in TUM is actually an extension of their electronic workshop.</li> <li>• It is a place where students come to experiment their innovative ideas.</li> <li>• It has no permanent tenants but mostly it houses students from the departments of electronics and information technology.</li> <li>• Students just need to identify and request equipment and tools they will need from the workshop.</li> <li>• Basically, students get to know about the incubation center through IRIE. After selecting the most innovative projects, IRIE funds them and actually incubates them from this workshop cum incubation center.</li> <li>• Otherwise, the rest get to know about the incubation center through their colleagues.</li> <li>• Basically, there are no selection criteria for being part of the incubation center. One needs to suggest an innovative idea and if the center has equipment to carry out experiments then a student will definitely be facilitated.</li> <li>• The facilities that are put in place of course include the equipment in the electronic workshop, some furniture, computers and internet connection.</li> <li>• Apart from the facilities above, currently there are no other support services provided to incubatees.</li> <li>• There is only one staff in charge of the incubation center and he is actually a technologist in charge of the electronics workshop.</li> <li>• The incubation center mainly works with IRIE to support the tenants with promising applications.</li> <li>• The incubation center does not in any way help tenants to access funds for starting up small businesses.</li> <li>• Since it does not have permanent tenants, there is no specified incubation period.</li> </ul>
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		<ul style="list-style-type: none"> <li>• Tenants are not charged any fee for using the facilities of the incubation.</li> <li>• Challenges include an insufficient budget for running the incubation center. Students who don't qualify for research and innovation funds are difficult to sustain in the incubation center.</li> </ul> <p><b>11. Technical University of Mombasa: Department of Electrical and Electronics Engineering</b></p> <ul style="list-style-type: none"> <li>• The department conducts research and some consultancies as well as training</li> <li>• They have some successful projects and they looking for private companies for implementation and mass production</li> <li>• They organize internal competition in order to come up with innovative ideas which can be sold</li> <li>• They work with TVET schools by sharing the resources with less charge, they also mentor TVET schools in different ways: developing their curriculum, human resource exchange</li> <li>• They organize and participate Robot competitions either national and international</li> <li>• They register (patent) all their products (research products)</li> </ul> <p><b>12. Technical University of Mombasa: Department of Computing and Information Technology</b></p> <ul style="list-style-type: none"> <li>• The department of computing and Information technology was established in 1987, motivated by the need to centralize computing as a service unit and to offer trainings.</li> <li>• Currently it is a fully-fledged academic department under the faculty of Engineering and Technology.</li> <li>• It is currently offering degree, diploma and certificate programmes in information and communication technology on both full-time and part-time basis.</li> <li>• The department is also working on an e-learning infrastructure and curriculum that will facilitate</li> </ul>
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		<p>distance learning in the near future.</p> <ul style="list-style-type: none"> <li>• Over time, the department has had a steady growth in terms of students' enrollment to the current number of over 600 students.</li> <li>• The department boasts of resources that include; 4 computer labs with 20 pcs each, a digital center with 60 pcs and a PC maintenance workshop.</li> <li>• The department also runs a cisco local academy that has a 14 pcs computer lab.</li> <li>• Apart from training, the department also promotes research and innovation for technological development in the field of computing.</li> <li>• The department establishes linkages with stakeholders and industrial players with view of having joint research and development projects in mobile applications and other custom software.</li> <li>• Another research interest of the department is bioinformatics where they are planning to work with local hospitals to mine data that will aid in determining trends of diseases in the region.</li> </ul> <p><b>13. TUM: Enterprise Unit/ The company</b></p> <ul style="list-style-type: none"> <li>• Enterprise unit under TUM is a new establishment, which was set up 2 months ago and not yet taken off. It was developed from what was a linkage unit of the “business center”, established in September 2010 when the institution was still a polytechnic. (Another unit of the business center, i.e. product development and marketing unit became IRIE)</li> <li>• Enterprise unit is registered as a company with limited liabilities, but exists within the university. The initial capital was given by the university as “seed money”.</li> </ul>
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		<p><u>Scope of work:</u></p> <ul style="list-style-type: none"> <li>Enterprise unit carries out the following activities to reduce the university expenditure. <ol style="list-style-type: none"> <li>Consultancy</li> <li>Short term training courses</li> <li>Income generation activities (e.g. cafeteria etc.)</li> </ol> </li> <li>Enterprise unit also carries out short term courses on entrepreneurship for TUM students. While Incubation Center under IRIE concentrates on a project based innovation activities for selected students, the enterprise unit teaches entrepreneurship for any willing students.</li> </ul> <p><u>Operational structure:</u></p> <ul style="list-style-type: none"> <li>The actual implementations are done by department staff, while enterprise unit coordinates and supervises the activities. Departments on their own do not conduct external activities, but have to go through the enterprise. The initiation of an activity, however, can come from both departments and the enterprise unit.</li> <li>When the enterprise unit needs to engage a department, the unit makes a request and looks for a relevant resource person. Resource persons are paid separately from their normal salary but without a contract. Instead, enterprise unit just writes an appointment letter for audit purpose.</li> <li>The profit is shared 60 % for the university and 40% for the enterprise. Academic staff are paid from enterprise expenditure.</li> </ul> <p><u>Past Experiences:</u></p> <ul style="list-style-type: none"> <li>Even when the unit was still a “business center” under the polytechnic, there were a lot of community outreach activities as well as industry collaboration works.</li> <li>Working with the external organizations enabled TUM to learn the needs, and reflect them in</li> </ul>
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		<p>the university operation. For instance, TUM started a hospitality department after realizing there are huge needs in the market.</p> <ul style="list-style-type: none"> <li>• Interactions with industry also enabled students to learn more practical skills.</li> <li>• There was also a community support project funded by European Union.</li> <li>• The business center worked with 150 Juakali (informal sector) people and supported them to develop a marketable product, e.g. furniture, bags, tailoring product etc.</li> <li>• It was a collaboration work with the industry, where TUM taught entrepreneur skills and the industry taught technical know-how.</li> <li>• TUM and the industry taught them 2 hours per week for 3 month, help them come up with a proto type of a product, providing necessary materials, and brought to exhibitions.</li> <li>• Some of them have become very successful entrepreneurs and even went abroad</li> </ul>
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**(RDPU Director)**

<p><b>7. Relevance of the mission to the individual, the Institution and the Country</b></p>	<p>1. Individual Relevance</p> <ul style="list-style-type: none"> <li>• The mission has embanked me as director of RDPU with the background on how education is done, process it takes and its requirements eg. How Research is conducted, how innovation is done, how production is connected to both research and innovations. I have seen also the importance of:</li> <li>• Planning as tool to success.</li> <li>• Monitoring and evaluation</li> <li>• Staffing for specific objectives</li> </ul>
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	<ul style="list-style-type: none"> <li>• Activities conducted in RDPU</li> <li>• Working with department</li> <li>• Working with industry and</li> </ul> <p>2. Relevance to the Institution</p> <ul style="list-style-type: none"> <li>• Coordination with in university / university structure</li> <li>• Responsibilities of each unity and department well coordinated</li> <li>• Staffing and qualified staff within the university in relation to workload distribution, 4 hours a day for teaching and rest of the time for research and innovation.</li> <li>• Education institution working together with government and industry for the betterment of the development of the country.</li> <li>• Autonomy of the university to manage the university (To determine which course, which program etc can be added or removed from the existing curricular )</li> <li>• TCT RDPU should remain as coordinating body should and give guidance, otherwise it will be too heavy to do everything. RDPU needs to encourage academia and students to come up with ideas. RDPU</li> <li>• For TCT as academic and research institute, RDPU should promote a component of research in the process of production and innovation. This will be a better learning experience for both academia and students through competitive research and innovations to make product out of it become more unique.</li> <li>• Develop a close relationship with other universities and colleges with in the country and in the region. This would be in form of student exchange or exchange of expatriates.</li> </ul>
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	<p>3. Relevance to the Country</p> <ul style="list-style-type: none"> <li>• It is a good model for university to follow</li> <li>• The government should reinforce and availing research and innovation funds for lectures and student so that their research finding can help to develop the country.</li> <li>• Government should offer developmental project to universities as form of support to skills development.</li> </ul>
<p><b>8. How the achievements from the mission will be put to use and how it will be monitored</b></p>	<p><u>Plan of action</u></p> <ul style="list-style-type: none"> <li>• Planning annual activity plan</li> <li>• Monitoring and evaluation of progress of activities</li> <li>• Establish a close link between department and RPDU</li> <li>• Mobilize funds for research and innovations</li> <li>• Establish a link between industry with TCT RDPU for product commercialization</li> </ul> <p><u>Monitoring</u></p> <ul style="list-style-type: none"> <li>• quarterly monitoring of activity plan implementation will be used to know much has been put in action and review according to the status and progress of activities.</li> </ul>

**(IT Member/ Incubation Center Coordinator)**

<p><b>7. Relevance of the mission to the individual, the Institution and the Country</b></p>	<p>1. Individual Relevance</p> <ul style="list-style-type: none"> <li>- As an academician, the mission has enlightened me on the importance of research and innovation as an integral part of my responsibilities at TCT.</li> <li>- I have also got an experience of how research, innovation, production and consultancy</li> </ul>
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	<p>activities are conducted in JKUAT and TUM which is a good basis for customizing their approaches to the realities of TCT.</p> <ul style="list-style-type: none"> <li>- As the coordinator of the incubation center I have learnt the best practices of running an incubation center in an effective and efficient manner</li> </ul> <p>2. Relevance to the Institution</p> <ul style="list-style-type: none"> <li>- For TCT to establish RDPU was a great step in the right direction, however, it needs to rethink the approach of managing business in the unit and adopt a model which closely involves the departments to implement the activities.</li> <li>- From the experience acquired from the mission, TCT should boost up its efforts towards research in order to have a niche on its production goods and services as well as having a unique impact to the society.</li> <li>- TCT staff should be motivated by the institution to carry out research and innovation and promotion of academic staff should be based on how much he/she has contributed towards research and innovation.</li> <li>- From the experience of the mission, TCT should explore aggressive means of showcasing its goods and services if it is to win a bigger market share.</li> </ul> <p>3. Relevance to the Country</p> <ul style="list-style-type: none"> <li>- As a country, this mission was of great importance in such a way that it would remind the policy makers to strengthen policies which would promote research and innovation in higher institution of learning because it the most effective way of exploring local solutions to challenges facing society.</li> </ul>
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<b>8. How the achievements from the mission will be put to use and how it will be monitored</b>	<p>Actions to be taken – Any plan/intention to implement some ideas at TCT</p> <ul style="list-style-type: none"> <li>• The implementation of research, innovation, production and consultancy activities is going to be decentralized to respective academic departments.</li> <li>• A policy is going to be drafted and implemented which stipulates the percentage of the income generated that is enjoyed by the staff involved in a project.</li> <li>• The issue of involving academic staff in research and writing research papers is going to be strengthened by facilitating whoever shows an effort in that direction.</li> <li>• Students’ final year projects are going to be made more competitive by attaching an innovation fund to the most innovative idea.</li> </ul>
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**(ET Member)**

<b>7. Relevance of the mission to the individual, the Institution and the Country</b>	<p>1. Individual Relevance</p> <ul style="list-style-type: none"> <li>• To know how others work and learn from their experience</li> <li>• To use available resources and come up with an idea which can be developed into a product</li> <li>• To motivate the students to think about innovation and sensitize on how others work</li> <li>• To work with colleagues to update the technology we are transferring to the students based on the needs</li> </ul> <p>2. Relevance to the Institution</p> <ul style="list-style-type: none"> <li>• To follow up the activities of all units and provide different competitions among department in order to interest them improve their performance and competence skills</li> <li>• To work together with other institutions by sharing resources</li> <li>• To organize different competitions internally and participate in external competitions\</li> </ul>
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	<ul style="list-style-type: none"> <li>• To set up units in charge of research and development and production to coordinate any related activity.</li> </ul> <p>3. Relevance to the Country</p> <ul style="list-style-type: none"> <li>• To provide the budget to the institutions for research</li> <li>• To provide money for final year projects to students in order to have innovations</li> <li>• To visit different institutions</li> <li>• To provide necessary materials (equipment) to the technical institutions</li> </ul>
<b>8. How the achievements from the mission will be put to use and how it will be monitored</b>	<p><b>Action to be taken</b></p> <ul style="list-style-type: none"> <li>• No institution has all resources; only sharing is the key</li> <li>• Promotion of creativity, we need to engage ourselves in research and encourage students to do innovations</li> <li>• To work in collaboration of with different areas and exchange technologies where many research can be conducted like in agriculture and health</li> <li>• Interest in doing something matters much</li> <li>• Well understand what someone is doing and how it should be done</li> <li>• Visit technical schools country wise and see the needs in order to come up with solutions</li> <li>• Organize competitions for TVET schools and interest students in TCT</li> <li>• Prepare workshops in TVET schools to market TCT technologies and sell some if possible.</li> <li>• To have ownership spirit (patent/copy writing)</li> <li>• To monitor the activities, we need a responsible unit (RDPU)</li> <li>• Report on any conducted activity and its output</li> </ul>

Annex 10 :

Production Unit Marketing Documents



Tumba College of Technology  
Website: [www.tcf.ac.rw](http://www.tcf.ac.rw)



# ***TUMBACOLLEGE of TECHNOLOGY (TCT)***

## ***- Research, Development, and Production Unit -***

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### **TCT Vision**

- ▶ To be a leading technical education center of excellence contributing to the scientific and technological development.
- ▶ To be a model institution creating new values through the activities of in-school venture and support of entrepreneurship.

### **TCT Mission**

- ▶ To produce technicians with competent hands-on skills, work attitude and knowledge at A1 level.
  - ▶ To ensure high quality technical education relevant to the industrial and social needs.
  - ▶ To contribute to the economic development of Rwanda through providing the practical technicians to the industry and encouraging entrepreneurship.
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### **Introducing the Research, Development and Production Unit at TCT**

In order to strengthen the quality of teaching, the Research, Development, and Production Unit (the Unit) was established within TCT in March 2013. The Unit's activities involve both income generation activities and community outreach programs, related to technical skills of TCT departments, namely Alternative Energy (AE), Electronics and Telecommunication (ET) and Information Technology (IT). Through the Unit's activities, the TCT staff are expected to give opportunities to improve their practical skills, become updated with the latest and appropriate technologies, and gain better understandings of the industrial and social needs.

The Unit at TCT is in charge of researches, consultancy and production with mandate of strengthening the capacity of the college through practically oriented approach in appropriate technologies for use and dissemination throughout the country.

#### **Products and Services provided by the Unit / TCT**

- Design, manufacturing, and assembling of equipment and components
- Installation of equipment
- Maintenance and support
- Trainings
- Consultations
- Research and Development

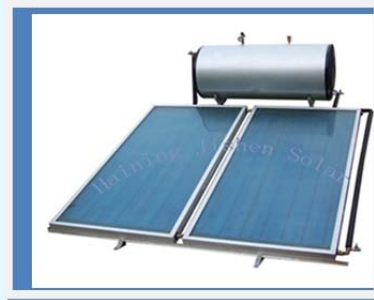
## TCT's Departments, Products & Services

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### ■ *Alternative Energy Department*

#### **Major Products**

- Solar Photovoltaic (PV) Systems, Solar Food Dryer, Solar Water Heaters
  - Free and renewable source of energy, helps reduce dependency on fossil fuels, very effective and low maintenance cost.
  - Beneficiaries are residents in the cities and rural areas, hotels, schools, hospitals, individual homes and communities, Government and NGOs, business communities, and many others.



- Biogas Technologies
  - A product of decomposing organic matter, such as sewage, animal by-products, and agricultural, industrial, and municipal solid waste.
  - Must be upgraded to a purity standard to fuel generators and be used as power generation.
  - Increase energy security, fewer emissions, better economics, cleaner environment and generate income.
  - Beneficiaries are schools, prisons, big communities, agricultural farms, and industrial homes with 15 to 30 kgs of animal and human waste per day.
- Improved Cooking Stoves, Backed-Tin Stoves, Briquette Moulds
  - Allows economic cooking and heating with any solid fuel.
  - It is affordable to the more affluent villagers.
  - Stove will work with many types of fuel, e.g.: wood, peat briquettes, paper briquettes etc.
  - Fuel-efficient design ensures less fuel, and prevents eye and lung diseases due to less smokes



#### Micro Hydro and Pico Hydro Power Generation System

- Both are a type of hydroelectric power produces up to 100 kW using natural flow of water.
- Provide power to an isolated home or small community.
- Provide an economical source of energy without purchasing of fuel.





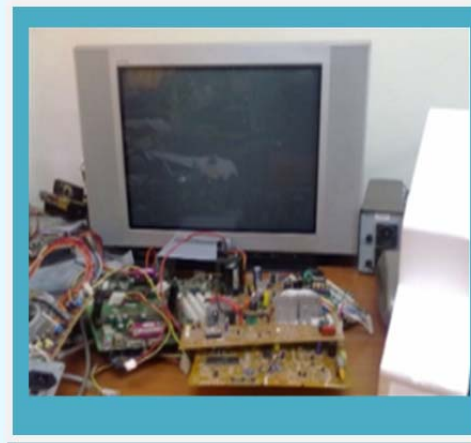
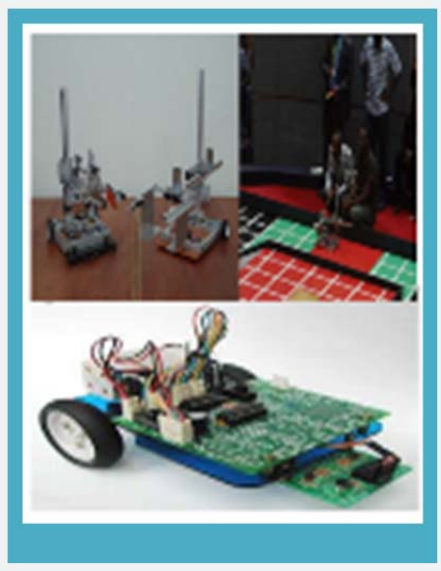
## ■ *Electronics and Telecommunication Department*

### **Major Products**

- Installation of Cabling and Wiring System, Installation and Maintenance of Local Area Network System
  - Save cost of material and installation.
  - Able to install and set up appropriately using the state of art equipment and analytical tools.
  - Customers are able to receive advises and consultation during system installation and enhancement.
  - Organizations such as firms, institutions, government, and hospitals intending to establish LAN.
  - Those using computer systems as stand-alone but intending to enhance inter and intra connection.



- Repair and Maintenance of Electronics Devices including Computers
  - Electronic devices such as computers and its peripherals, TV sets and others need to be repaired.
  - Necessary materials for repair can be purchased through TCT at one time process.
  - Able to repair and set up appropriately using the state of art equipment and testing kit.



- Assembling of Robotics for Educational Use
  - Maintenance and repair even after assembling can be done by TCT staff for continuing operation.
  - Students are able to participate in the robotic contests.
  - Those students want to learn new electronics technology, such as assembling of parts and programming.

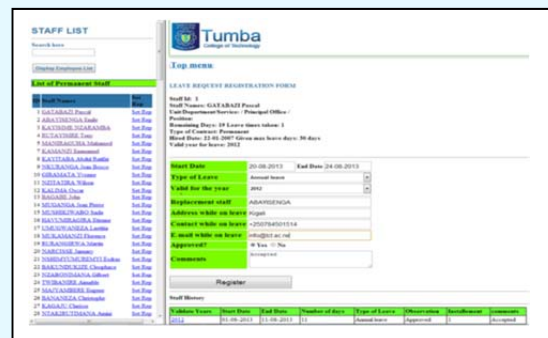
### **Other Products**

- Automation Control Systems Using PLC Technology
- Installation and Maintenance of CCTV and its Peripheral Devices

## ■ *Information Technology Department*

### **Major Products**

- Tailored ICT Trainings
  - Trainings held both at TCT Tumba campus and Kigali Center.
  - Variety courses are available including basic hardware operation, maintenance, and trouble shootings.
  - CISCO certified courses are available for network professionals.
  - Tuition and fees for all classes are lower compare with other computer institutions.
- Leave Management System (Application Software)
  - Works as stand-alone system by each location (Connecting in networks are not necessary)
  - Easy to operate and have user friendly man-machine interface.
  - Many applicable usage such attendance/absence management, time table and scheduling/calendar.



- Hardware & Software Installation, Maintenance and Services/Support
  - Able to design, configure, and install based on the customer's requirements and needs
  - Equipment, components, and necessary items for installation can be purchased through TCT.
  - Maintenance and support even after installation of the whole system can be done by TCT.



### **Other Products**

- Access to Internet
- Installation and Maintenance of Local Area Network System
- Database Design & Implementation
- Driving Test Pointing System (Application Software)

#### **For more details, contact:**

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# Solar Photovoltaic (PV) Systems

## How does it work?

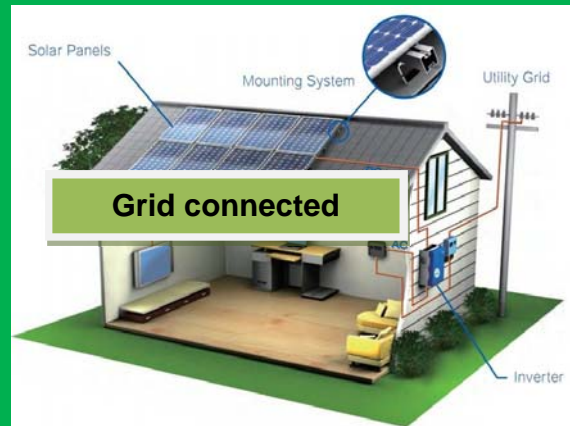
- Our system is different in size and scale;

1. 1 to 5 watt

2. Small systems from 1 to 5 watts

3. On and off grid systems

4. Centralised systems



## What are advantages?

- It is thus free and abundant
- Solar energy can be made available almost anywhere if there is sunlight
- Operating and maintenance costs for PV panels are considered to be low
- Residential solar panels are easy to install

## Who are Business Potentials?

- Selling this product to those who require strong replacement of unreliable power as well as energy efficiency
- As strong replacement of CO<sub>2</sub> producing energy system
- For those who intend to generate income
- An individual's homes, business units, Government, and NGOs. Etc.

## What are services on these product?

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Research and Development

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# Solar Food Dryer

## How does it work?

- Enables food to be hygienically preserved for future consumption using only solar energy
- Less manufacture process, so it can be afforded by the less affluent villagers
- Can be made in various different sizes. TCT has manufactured dryers at various sizes



## What are advantages?

- Food is safe from thieves and animals due to lockable lid (padlock not supplied)
- Food is enclosed and protected from flies, dust and rain
- Temperatures are maintained even on cold days
- Meat, fruit, vegetable and other foods can be dried

## Who are Business Potentials?

- Selling this product to those who produce excess food
- Drying other people's food for extra income
- Drying own food for sale to the shops and markets
- Drying food for personal use in the future winter months

## What are services related to the product?

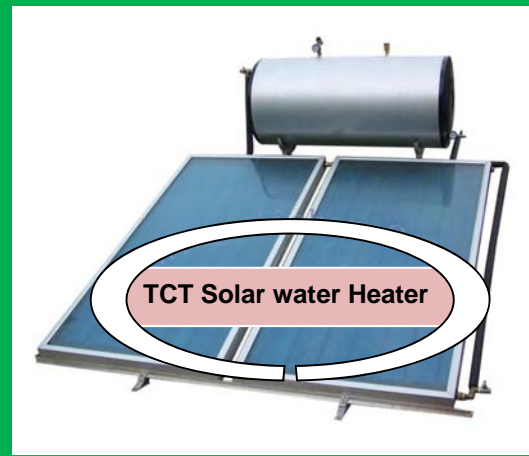
- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Research and Development

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# Solar Water Heaters

## How does it work?

- A solar panel is a box with a window over it and some water (or another fluid) circulating inside
- The sunrays passing through the window and heating water
- In TCT case, we will use metal pipes inside the panel to make the water circulate



## What are advantages?

- The systems use solar energy which is a free and renewable source
- The system use solar energy which helps reduce our dependency on fossil fuels
- The System is very cost effective
- The system have low maintenance costs

## Who are Business Potentials?

- The residents in the cities and rural areas
- Hotels, schools and hospitals
- Individual homes and communities
- Government and NGOs
- Business communities

## What are services related to the product?

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Research and Development

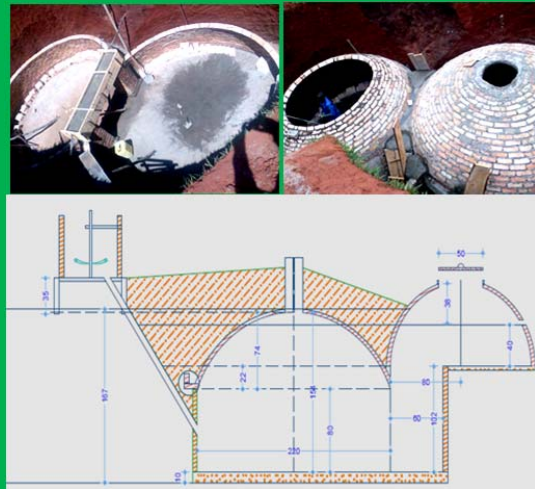
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# Biogas Technology

## How does it work?

- Biogas is a product of decomposing organic matter, such as sewage, animal by-products, and agricultural, industrial, and municipal solid waste
- Biogas must be upgraded to a purity standard to fuel generators and be used as power generation



## What are advantages?

- Increase energy security
- Fewer emissions
- Better economics
- Cleaner environment
- Generates income
- Creates jobs

## Who are Business Potentials?

- Anyone who Owns:
  - At least 2 to 3 cows, or more
  - 15 goats/pigs, 300 chicken etc
  - Schools, prisons, and big communities
- Agricultural farms / agricultural industries as well as Cities

## What are services related to the product (s)

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Research and Development

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# Improved Cooking Stoves

## How does it work?

- This stove allows economic cooking and heating with any solid fuel, and will suit conventional
- Although the cost is a fraction of that of commercially available equivalents, it is only affordable to the more affluent villagers
- Number of stoves are available for any given purchasing power



## What are advantages?

- Highly competitive price and should ensure good sales
- Stove will work with many types of fuel, e.g.: wood, peat briquettes, paper briquettes etc.
- Fuel-efficient design ensures less fuel is required for cooking than normal
- Prevents eye and lung diseases due to less smokes

## Who are Business Potentials?

- Cooking meals for others at a price
- Cooking meals for an average sized family
- Making and selling the stove for a profit

## What are services related to the product (s)?

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Consultations
- Research and Development

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# Tin-Bucket Stoves

## How does it work?

- An extremely cheap method of cooking that can be constructed by anyone shown how
- It needs only a cheap iron grate and local clay
- It saves a great deal of the energy wasted by an open fire by directing it, thereby saving fuel.



## What are advantages?

- Highly efficient compared to standard stove design
- Easy to maintain
- Cheap and easy to build
- Locally available materials
- Less cost, etc.

## Who are Business Potentials?

- Rural residents
- Sub urban areas and those who have less income society
- Areas where firewood is not supplied with a sufficient
- Where there is enough agricultural waste

## What are services related to the product (s)

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Research and Development

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# Briquette Moulds

## How does it work?

- This works as human pressure applied to the biomass in the mould and takes the form of the mould
- Waste paper, agricultural waste, peat and other organic materials to make briquettes using briquette moulds or handmade.
- TCT is offering a number of technologies in relation to briquette making



## What are advantages?

- Briquettes can be made from waste paper, i.e. the raw materials are free
- The briquettes will produce less CO<sub>2</sub> than fossil fuels and therefore be more environmentally friendly
- Keeps our cities and towns tidier

## Who are Business Potentials?

- Making paper fuel bricks for selling on to others for fuel
- Making paper fuel bricks for personal use to save fuel costs.
- Making other biomass into fuel for e briquettes for market or personal use
- Making and selling for a profit

## What are services related to the product (s)

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Research and Development

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# ***Micro Hydro Power Generation System***

## **How does it work?**

- Micro hydro is a type of hydroelectric power that typically produces up to 100 kW of electricity using the natural flow of water
- Provide power to an isolated home or small community
- Also provide sometimes communities connected to electric power networks
- It can provide an economical source of energy without purchasing of fuel



## **What are advantages?**

- Electricity is generated through a process that utilizes the natural flow of water
- Zero emissions resulting from this conversion process.
- It has little to no harmful effects on the environment, if planned well
- Microhydro is a "run-of-river"

## **Who are Business Potentials?**

- Isolated communities in need of electricity
- Those for who live in remote areas even with only a small stream needed
- Remote areas which cannot access lighting and communications for homes, medical clinics, schools, and other facilities
- Microhydro can run machinery supporting small businesses

## **What are services related to the product (s)**

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Research and Development

***For more details contact:***

***Kamanzi Emmanuel***

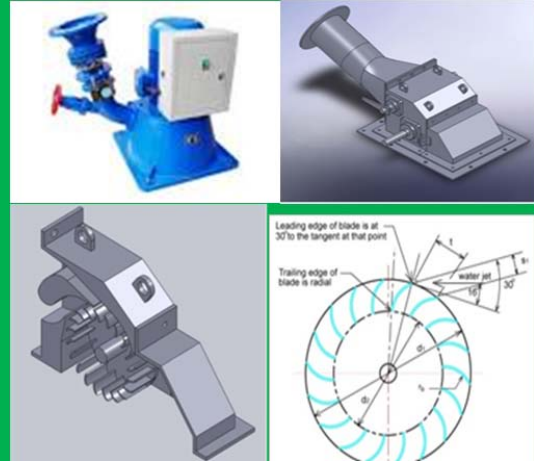
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***E-mal: ekamanzi@tct.ac.rw***

# Pico Hydro Power Generation System

## How does it work?

- “Pico” refers to the size of electric power produced, it's in the range of few hundred watt up to 5 kW
- Pico hydro is the term used in hydro electric power
- It's utilizing the height difference (Head) of flowing water (Flow) to run the hydraulic turbines that coupled with electric generator producing electricity



## What are advantages?

- It's much cheaper
- The compact size of equipments makes it easy in transportation and installation
- No need of large workmanship and special equipment to install
- It can be built and installed by the villagers and technician under guidance of the expert

## Who are Business Potentials?

- Local residents
- Those who are without access to grid power
- Those who want to be independent in power supplies from the grid
- Business with small scale e.g. hair cut shops, phone changing, small business firms, etc.
- Small guest houses in the village etc.

## What are services related to the product (s)

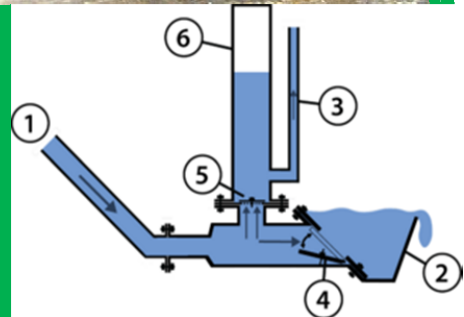
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# Impulse Water Pump

## How does it work?

- An impulse pump is a water pump powered by water with a height difference
- The impulse pump uses the water hammer effect to develop pressure that allows a portion of the input water that powers the pump to be lifted to a point higher than where the water originally started
- In areas where natural flows exist with a height difference of the water over a small distance, impulse pumps can be used to transport water to higher grounds without using electricity or fuel
- Apart from the kinetic energy of the water, no other source of power is needed



## What are advantages?

- Can be produced and maintained locally if properly designed
- Very effective in mountainous areas
- Low cost installation and easy to use
- Low cost maintenance

## Who are Business Potentials?

- Agricultural farms
- Farmers
- Villagers who wishes to irrigate their farms
- Communities in hilly or mountainous areas

## What are services related to the product (s)

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Research and Development

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# Installation of Cabling and Wiring System

How does it work?

- Well trained instructors and technician even the students of TCT are able to design and install based on the customer's needs
- Materials, equipment components, and other necessary items for installation can be purchased through the procurement team of TCT at one time process
- Maintenance and support even after installation of the whole system can be done by TCT staff for continuing operation



What are advantages?

- Able to save the cost of material and installation fees.
- Can be installed within the certain time of period that customers requires
- Able to install and set up appropriately using the state of art equipment such as analytical/testing tools
- Customers are able to receive advises and consultation during system installation and enhancement

Who are the beneficiaries?

- Those who need antenna for reception of AM/FM radio, TV, satellite systems, short wave radios, and other radio communication equipment and devices
- Those who want to transmit radio waves at the opening stage of AM/FM radio stations or community antenna radio systems in the city as well as in the local area
- Other application for installation and connection of electronic and communication devices

What are services on the product?

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Research and Development

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# Repair and Maintenance of Electronics Devices including Computers

How does it work?

- Electronic devices such as computers, printers, scanners, TV sets and among others need to be repaired and maintained by well trained instructors and technicians of TCT.
- Materials, equipment components, and other necessary items for repair can be purchased through the procurement team of TCT at one time process



What are advantages?

- Able to save the cost of material and repair fees
- Can be repaired within the certain time of period that customers requires
- Able to repair and set up appropriately using the state of art equipment such analytical tools and testing equipment
- Customers are able to receive any advises during the installation and enhancement period of the system

Who are the beneficiaries?

- Those who have any malfunctioning electronic equipment and required to be repaired immediately
- Those who needs to keep their devices working properly
- Those who wish to own a technical business in repair and maintenance

What are services related to the product?

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Research and Development

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# Assembling of Automation Control Systems Using PLC Technology

## How does it work?

- Programmable Logic Controller (PLC) is used in automation, control and monitoring systems and it consists from PLC, converters, circuit breakers and relays
- Assembling equipment as well as programming works will be done by well trained instructors, technicians, and even the skillful students of TCT
- Customers are able to receive any advises during the installation and enhancement period of the system



## What are advantages?

- This technology has a variety of application such as control systems in traffic lights, home lights, water tank, and motor control. Also being used for building up of factory automation systems. Such works can be done by well trained instructors, technicians, and even the skillful students of TCT

## Who are the beneficiaries?

- Those industries with a manual or semi-automated manufacturing system
- Those manufacturers who want to upgrade or improve current manufacturing process
- Those manufacturers who want to repair their processing machines

## What are services on this product?

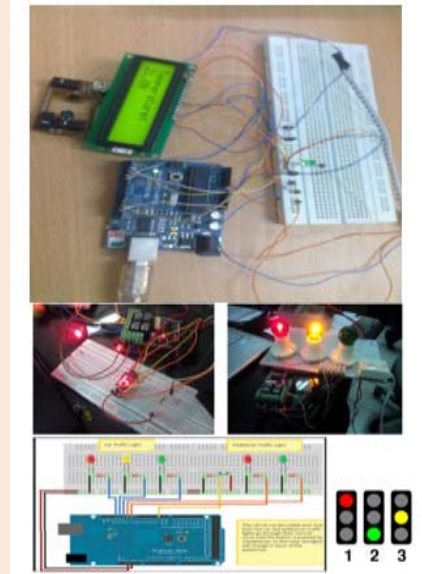
- Design, manufacturing, and assembling
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# Installation and Maintenance of CCTV and its Peripheral Devices

## How does it work?

- Well trained instructors and technician even the students of TCT are able to design and install based on the customer's needs
- Materials, equipment components, and other necessary items for installation can be purchased through the procurement team of TCT at one time process
- Maintenance and support even after installation of the whole system can be done by TCT staff for continuing operation



## What are advantages?

- Able to save the cost of material and installation fees
- Can be installed within the certain time of period that customers requires
- Able to install and set up appropriately using the state of art equipment such analytical tools and testing equipment
- Customers are able to receive any advises during the installation and enhancement period of the system.

## Who are the beneficiaries?

- Those who need CCTV for monitoring in the assembly line in their factory
- Those who want to monitor their own factory and each processing line for protection of employees as well as products and processing equipment
- Security companies for monitoring of their client's site

## What are services related to the product?

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Research and Development

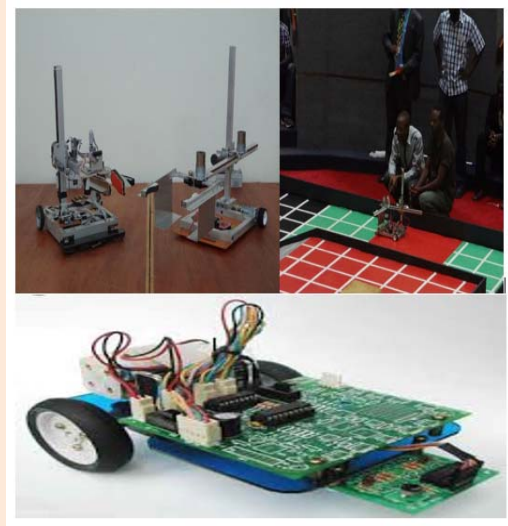
**For more details contact:**  
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# Assembling of Robotics for Educational Use

## How does it work?

- The picture illustrates the robotics of line tracer, small and medium can carry assembled at TCT.
- Well trained instructors and technician even the students of TCT are able to design and assemble the robotics shown in the picture.
- Materials, components, and devices for assembling can be purchased through the procurement team of TCT at one time process.



## What are advantages?

- Maintenance and repair even after assembling can be done by TCT staff for continuing operation
- Students are able to participate in the robotic contests
- Materials, components, devices and other necessary items for assembling can be purchased through the procurement team of TCT at one time process

## Who are the beneficiaries?

- Those students who want to participate and compete in the robotic contest.
- Those students who want to learn new electronics technology, such as assembling of parts and programming.

## What are services related to the product?

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Research and Development

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# Installation and Maintenance of Local Area Network System

## How does it work?

- Well trained instructors and technician even the students of TCT are able to design, configure, and install based on the customer's requirements and needs
- Servers, peripherals, cables, materials, other equipment components, and necessary items for installation can be purchased through the procurement team of TCT at one time process
- Maintenance and support even after installation of the whole system can be done by TCT staff for continuing operation



## What are advantages?

- Able to save the cost of hardware, software, peripherals, and installation fees
- Can be installed within the certain time of period that customer's requires
- Able to install and set up appropriately using the state of art equipment such analytical tools and testing equipment
- Customers are able to receive any advises during the installation and enhancement period of the system

## Who are the beneficiaries?

- Any organizations such as firms, institutions, government organizations, or hospitals who are intending to establish their own Local Area Networks
- Those who are using computer systems as stand-alone but intending to have both inter-connection system as well as internet connection

## What are services related to the product?

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations, Research and Development

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# Hardware & Software Installation, Maintenance and Services/Support

How does it work?

- Well trained instructors and technician even the students of TCT are able to design, configure, and install based on the customer's requirements and needs
- Servers, peripherals, cables, materials, other equipment components, and necessary items for installation can be purchased through the procurement team of TCT at one time process
- Maintenance and support even after installation of the whole system can be done by TCT staff for continuing operation



What are the advantages?

- Able to save the cost of material and repair fees.
- Can be repaired within the certain time of period that customers requires
- Able to repair and set up appropriately using the state of art equipment such analytical tools and testing equipment
- Customers are able to receive any advises during the installation and enhancement period of the system.

Who are the beneficiaries?

- Those who have any malfunctioning electronic equipment and required to be repaired immediately
- Those who needs to keep their devices working properly
- Those who wish to own a technical business in repair and maintenance

What are services on these product?

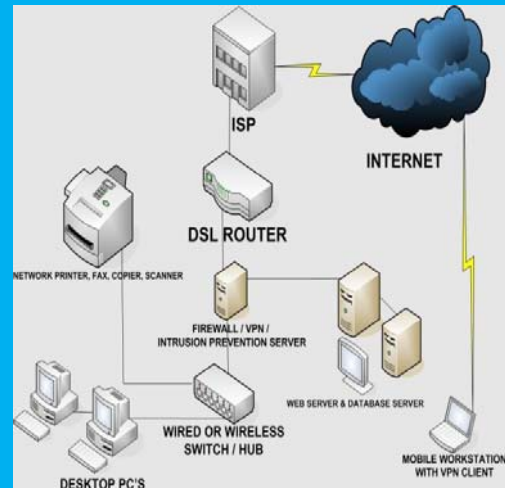
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# Access to Internet

How does it work?

- Well trained instructors and technician even the students of TCT are able to design, configure, and install based on the customer's requirements and needs.
- Servers, peripherals, cables, materials, other equipment components, and necessary items for installation can be purchased through the procurement team of TCT at one time process
- Maintenance and support even after installation of the whole system can be done by TCT staff for continuing operation



What are the advantages?

- Able to save the cost of hardware, software, peripherals, and installation fees.
- Can be installed within the certain time of period that customer's requires
- Able to install and set up appropriately using the state of art equipment such analytical tools and testing equipment
- Customers are able to receive any advises during the installation and enhancement period of the system

Who are the beneficiaries?

- Government organizations which are intending to establish e-government
- Public institutions and organizations also intending to establish networking environment
- Private enterprises, factories, banks, and others

What are services on these product?

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations

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# Installation and Maintenance of Local Area Network System

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## What are the advantages?

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- Can be installed within the certain time of period that customer's requires
- Able to install and set up appropriately using the state of art equipment such analytical tools and testing equipment
- Customers are able to receive any advises during the installation and enhancement period of the system

## Who are the beneficiaries?

- Any organizations such as firms, institutions, government organizations, or hospitals who are intending to establish their own Local Area Networks
- Those who are using computer systems as stand-alone but intending to have both inter-connection system as well as internet connection

## What are services on these product?

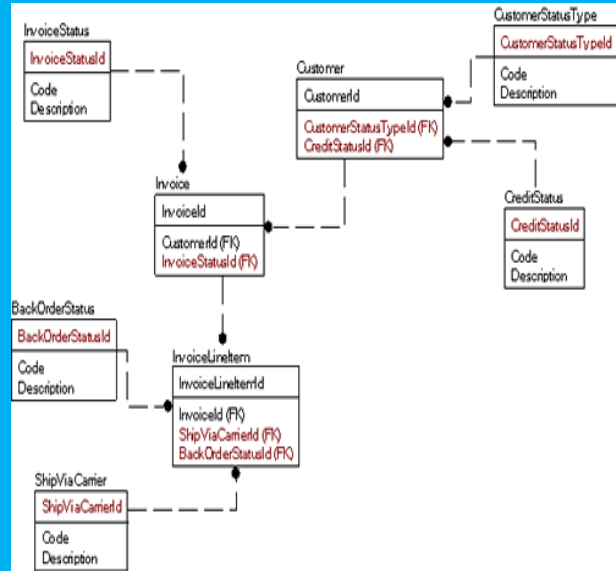
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- Installation
- Maintenance and support
- Trainings
- Consultations

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# Database Design & Implementation

## How does it work?

- Able to design the database according to the specific needs of the customers
- Able to save the cost of hardware, software, peripherals, and installation fees
- Can be installed within the certain time of period that customer's requires
- Able to install and set up appropriately using the state of art equipment such analytical tools and testing equipment
- Customers are able to receive any advises during the installation and enhancement period of the system



## What are the advantages?

- Able to save the cost of hardware, software, peripherals, and installation fees.
- Can be installed within the certain time of period that customer's requires.
- Able to install and set up appropriately using the state of art equipment such analytical tools and testing equipment
- Customers are able to receive any advises during the installation and enhancement period of the system.

## Who are the beneficiaries?

- Any organizations such as firms, institutions, government organizations, or hospitals who are intending to establish their own relational database systems
- Those who are using computer systems as stand-alone but intending to have both inter-connection system as well as internet connection and share their databases within or with external organization

## What are services on these product?

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Research and Development

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# Tailored ICT Trainings

## How does it work?

- Trainings are being held both at TCT Tumba campus and Kigali Center
- Many variety courses are available including very basic hardware operation, maintenance, and trouble shootings
- Also networking, software development, and web application courses are available
- CISCO certified courses are available



## What are the advantages?

- Tuition and fees for all classes are very low compare with other computer institutions.
- Anyone who wants to be an ICT expert are able to make his/her dreams reality.
- Applicants are able to select the coursed from many variety of available courses depending on their interests.
- Emphasizing in hands-on training so that applicants are able to apply their tasks into actual work.
- Both night and day classes are available so that applicants are able to set their own time table depending on their availability.

## Who are the beneficiaries?

- Open to anybody who want to be an computer experts. The applicants will be consisting from students, office workers, job seekers, and those who are seeking for livelihood development
- Those who are seeking for specific technology in networking systems particularly in Local Area Networks, CISCO systems, and many expertise area in computer area
- For those who have not touched computers or even have not seen keyboards before are able to learn from very basic courses
- Classes are available for those who want to go into other field of ICT area such as hardware repairs, electronic application, and fiber optics cable/wiring.

## What are services on these product?

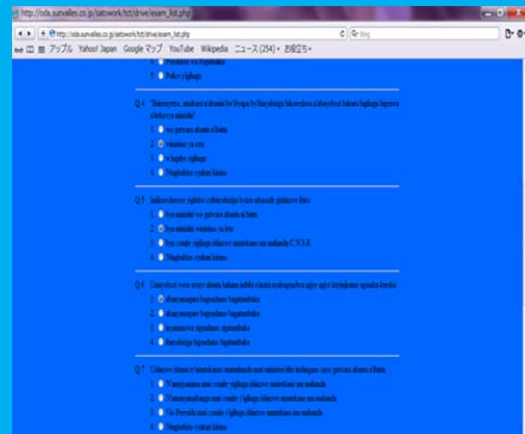
- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Certifications
- Make-up courses are available depending on the applicant's needs

**For more details contact:**  
**Kamanzi Emmanuel**  
**Tel: 0788431109**  
**E-mail: [ekamanzi@tct.ac.rw](mailto:ekamanzi@tct.ac.rw)**

# Driving Test Pointing System (Application Software)

## How does it work?

- Scores of driving test will be pointed out automatically so that it shortens the notice of test result to applicants
- Questions of the test will be sorted out automatically from the source of questions and selected randomly
- Does not have to rely on papers and pens, but pointed only by the keyboard of the computers
- Very easy to use even for those who have no computer skills



## What are the advantages?

- Works as stand-alone system by each location (Connecting in networks are not necessary)
- Easy to operate and have user friendly man-machine interface
- Able to use not only in the cities but even communities of rural area without any electricity
- Many applicable usage such as aggregate calculation of questionnaire survey, campaign rally, etc.
- Very easy to modify this software for other type of application
- Able to enhance to run on networking application

## Who are the beneficiaries?

- Any government agencies, but particularly the police station of each district
- Event organizer or promoters of festivals or any events that needs survey
- Test methods among primary and secondary schools, or even at the universities are able to use this application software for implementation of multiple choice type of examinations

## What are services on these product?

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations
- Modification of the software depending on the request

**For more details contact:**  
**Kamanzi Emmanuel**  
**Tel: 0788431109**  
**E-mail: ekamanzi@tct.ac.rw**



# Leave Management System (Application Software)

## How does it work?

- The system has been developed based on the national "leave policy" of the government of Rwanda
- Able to visually identify how many days of "paid leave" are left in the calendar year
- Does not have to rely on papers and pens, but key in only using the keyboard of the computers
- Very easy to use even for those who have no computer skills including workers at farm and big factory

Validate Years	Start Date	End Date	Number of days	Type of Leave	Observation	Installation	Comments
2012	01-08-2013	11-08-2013	11	Annual leave	Approved	1	Accepted

## What are the advantages?

- Works as stand-alone system by each location (Connecting in networks are not necessary)
- Easy to operate and have user friendly man-machine interface
- Many applicable usage such attendance/absence management, time table and scheduling/calendar application
- Very easy to modify this software for other type of application
- Able to enhance to run on networking application

## Who are the beneficiaries?

- Any government agencies including ministries, schools, universities and other institutions.
- Private companies, mostly for those who have many employees for managing of their at-work or absence record.

## What are services on these product?

- Design, manufacturing, and assembling
- Installation
- Maintenance and support
- Trainings
- Consultations, Research and Development

**For more details contact:**  
**Kamanzi Emmanuel**  
**Tel: 0788431109**  
**E-mail: ekamanzi@tct.ac.rw**

Annex 11 :

Production Unit Launching Ceremony Report

**TCT Research, Development and Production Unit**

**Launching Ceremony Program**

<b>Time</b>	<b>Agenda</b>	<b>Presenter</b>
9:00-9:05	<u>Welcome Remarks</u>	TCT Principal
9:05-9:10	<u>Opening Remarks</u>	Chief Representative, JICA Rwanda
9:10-9:20	<u>TCT Overview Presentation</u> (10 min) <ul style="list-style-type: none"><li>- School Overview and TCT's Skills</li></ul>	Vice Principal Academic
9:20-9:45	<u>Introductory Presentation</u> (15 min) <ul style="list-style-type: none"><li>- Unit overview and its aims</li><li>- Uniqueness of TCT RDPU/Skilled based services</li><li>- Possible goods &amp; services (general)</li><li>- How RDPU intends to work with external partners</li></ul> Q&A (10min)	Director of RDPU
9:45-10:45	<u>Presentation on TCT's goods &amp; services</u> <ul style="list-style-type: none"><li>- Information Technology (IT)</li><li>- Electronics and Telecommunications (ET)</li><li>- Alternative Energy (AE)</li></ul> (20min incl. Q&A for each presentation)	AE, ET, IT department
10:45 -	Start serving tea	
10:45-12:00	<u>Demonstration of products &amp; services</u> <ul style="list-style-type: none"><li>- Interactive presentation of the products and services</li><li>- Each department will have its own booth to present, demonstrate and explain about the products</li><li>- Audience can move around freely and visit the booth of their interest</li></ul>	AE, ET, IT department
12:00-13:30	Lunch (Open end)	

## RDPU Launching Ceremony: Participant List

S/N	ORGANISATION/COMPANIES/GOV BODIES	Position	Name	No. of guests
<b><u>Government Organizations</u></b>				
1	Energy, Water and Sanitation Authority (EWSA)	Head of Training Center	LULISA N.	1
2	Energy, Water and Sanitation Authority (EWSA)	JCT Networking	KANOBANA Robert	1
3	Rwanda Development Board (RDB)	Skills department Officer	Fabrice Nizeyimana	1
4	FARG	IT Director	RIBAKARE J D	1
5	Rwanda Correctional Service (RCS)	Estate Manager	BUTARE Godfrey	1
6	Rwanda defence force (RDF)	Staff Officer	Captain Augustin NZIGAMASABO	1
7	Rwanda Demobilization and Reintegration Commission (RDRC)	Training expert	NKURUNZIZA Peter	1
<b>Subtotal</b>				<b>7</b>
<b><u>Industries</u></b>				
1	Private Sector Federation (PSF)	Research and Advocacy officer	UWERA Fionah	1
2	PSF Chamber of ICT	Director	Alex Ntale	1
3	PSF Chambers of Agriculture	Director	SINDAYIGAYA Germaine	1
4	PSF	PSF Staff	Geoffrey KAMANZI	1
5	Avengers Technologies Ltd.	CEO	KAGABO Patrice	1
6	Gakenke Eng. Center Ltd	Managing Director	Iradukunda Patience	1
7	Ese URWIBUTSO	Teacher CFSG	NIYONSENGA Faustin	1
8	RETS Ltd.	IT	Eric Dusabimana	1
9	RETS Ltd.	IT	HABIMANA JD'Amour	1
10	Equity Bank-Musanze	Manager	Moses Njoroge	1
11	VICTORY TECHNOLOGIES KIGALI	Managing Director	Guy Aime BIZIMANA	1
12	TECHNO BRAIN KIGALI	Account Executive	TUMWESAZE Norman	1
13	TECHNO BRAIN KIGALI	General Manager	ANAND SHARMA	1
14	TTS	Technical Manager	Beza Maurice	1
15	Techusare Solution Rwanda	Solar manager	Ephrem Kabuye	1
16	Comm Tech	Engineer	GASASIRA Geoffrey	1
17	Nuru Rwanda	Technician	NZARAMYIMANA Bosco	1
18	KIE( University of Rwanda ,College of Education)		Dr NTIVUGURUZA Celestin	1
19	SOS	Director	UWISANGA Freddy	1
20	ULK Kigali	Lecturer	NAHIMANA Godfroid	1
21	National id.(NIDA)	DAF	MURENZI Aloys	1
22	Practical Action Consulting	Regional Energy Coordinator	Hiwot Teshome	1
23	COOPERATIVE AJDR	Technician	NSENGIYUMVA J Bosco	1
24	ACER Ltd	Technical manager	NTEZIRYAYO Jean Chrisostome	1
25	Alternative fuel Briquette Company	Manager	KAREKEZI Mao	1
26	ESA/Enginey and supply Activities	Managing Director	NIKUZE Chantal	1
27	MANUMETAL	C.O.O	BAYIGAMVA Jean Louis	1
28	SULFO RWANDA	Administrative Manager	GASHAGAZA Claudien	1
29	NDBP (National Domestic Biogas Program working in EWSA)	Biogas Quality Control Officer	NIYIBIZI Alain Pacience	1
30	ABEM	Managing Director	Narrcisse Kayihura	1
<b>Subtotal</b>				<b>30</b>
<b><u>Communities</u></b>				
1	Tumba Health Center	Head of Health Center	Bunani Godfroid	1
2	Nemba Hospital	EMR Data Manager	NIYIREMA Cyprien	1
<b>Subtotal</b>				<b>2</b>
<b><u>Donors, NGOs, and others</u></b>				
1	TCTSU	Guild President	Nkotanyi Ngororano	1
2	TCT ALUMNI	Representative	GATSINZI Steven	1
3	SPD	Marketing Managr	Karambizi Abdoul	1
4	Media	N/A	MUREGO Jean Jacques(RBA)	1
5	Media	N/A	Aimable TWIRINGIYIMANA(RBA)	1
6	Media	N/A	Martin NYIRIJABO (RBA)	1
7	Media	N/A	Daddy RUBANGURA(Umuseke.com)	1
8	Media	N/A	Emma UMURERWA(Igihe.com)	1
9	Media	N/A	Hakizimana Yussuf(Imvaho Nshya)	1
10	Media	N/A	Gilbert KAKULE(Researcher)	1
11	Media	Managing Director	Agnes MUKANDINDA(RBA)	1
<b>Subtotal</b>				<b>11</b>

S/N	Name	Position		No. of guests
<b>TCT</b>				
1	GATABAZI Pascal	Principal		1
2	ABAYISENGA Emale(Vice Principal)	Vice Principal for Academics and Trainings		1
3	NZARAMBA Kayisime(Vice Principal)	Vice Principal for Administration and Finance		1
4	KAMANZI Emmanuel	Head of RDPU		1
5	KAYITABA Abdoul	Director of academic Services		1
6	RURANGIRWA Martin	Assistant Lecturer		1
7	BAKUNDUKIZE Cleoplace	Assistant Lecturer		1
8	NKUSI Moses	Public Relations Officer		1
9	BAGABE John	IT HOD		1
10	Twibanire Aimable(AE HOD)	AE HOD		1
11	Arcade Nshimiyimana	Assistant Lecturer		1
12	MANIRAGUHA Muhamad	Lecturer		1
13	RUTAYISIRE Tonny	Lecturer		1
14	Kalima Oscar	Lecturer/Manager ICT Center		1
15	Mwesigye Vincent	Procurement officer		1
16	Giramata Yvone	Dean of Student		1
17	NSABIMANA J Elvis	Instuctor		1
18	Mugwaneza Emmanuel	Instuctor		1
19	RUSAGARA Michael	Instuctor		1
20	Ngendabanga j Pierre	Instuctor		1
21	Dukuzumuremyi Dieudonne	Instuctor		1
22	Habineza jean de Dieu	Instuctor		1
23	Nkuranga JD	Director of Academic Quality Assurance		1
24	NZITATIRA Wilson	Director of Administration and HRM		1
25	NDIKUBWIMANA	Assistant		1
26	MUSABYIMANA JP	ET HOD		1
<b>Subtotal</b>				<b>26</b>
<b>JICA</b>				
1	Mr. HIROYUKI Kobayashi	JICA Representative		1
2	Ms. SATOMI Kamei	Edu Advisor		1
3	Mr. SHINISHIRO Nakahara,	WDA Advisor		1
4	Mr. RYUICHI Nishiyama	Chief Advisor		1
5	Mr. TATSUMI Aragaki	JICA Expert		1
6	Ms. NANA Kondo	JICA Expert		1
7	Ms. ERIKA Asada	JICA Expert		1
8	Mr. JUNICHIRO Tomiyasu	JICA Expert		1
9	NDAYISHIMIYE Bravo Patrick	Project officer		1
10	NIYTEGEKA Silas	Project officer		1
<b>Subtotal</b>				<b>10</b>
<b>Grand total</b>				<b>86</b>

## TCT Research, Development & Production Unit

### Goods & Services

by

RUTAYISIRE Tonny (IT)  
NSHIMIYIMANA Arcade (ET)  
BAKUNDUKIZE Cleoplace (AE)

## Contents

IT, ET, AE departments will give presentations on the following contents;

1. Area of Competence
2. RDPU Goods & Services
3. Previous Experience

## IT department Goods & Services

by

RUTAYISIRE Tonny (IT)

## 1. TCT IT, Areas of competence

1. Hardware Maintenance & Repairs
2. Computer Networks
3. Windows/Linux servers
4. Software Application Development



## 2. IT Research, Dev't & Production Services

### Consultancy

- HW & SW specification and acquisition guidance
- HW & SW installation, configuration and support
- IT-Equipment inventory
- ICT staff recruitment
- Preventive computer maintenance
- Corrective computer servicing
- Data backup & Recovery
- OS Virtualization

## Cont'd

### Consultancy

- LAN solutions (design & implementation)
- Network (ip) upgrades
- Optic fiber technologies
- VPN Technologies
- Windows/Linux Servers
- Network Monitoring solutions (cacti & nagios)
- VMware (network remote admin using smart phone)

## Cont'd

Products

- Teacher's Course Evaluation System.

This is an efficient application used to rate the Lecturer's module delivery & practical skills contribution evaluation and reporting tool. Currently in use at TCT and once it's clearly explained, many other learning institutions can adopt this system.



## Cont'd

Products

- Leave Management System.

An application which is internally developed that is currently in use at TCT HR Office. This can also be a solution oriented to many other private as well as government institutions.



## Cont'd

Products

- Electronic Examination system

Based on the system prototype for electronic examination for driving license, we can make a general show on application **Electronic Examination system in general**, not driving license in particular.



## Cont'd

Community outreach

- Basic IT skills transfer to secondary school teachers
- IT Lab holiday program to secondary school students
- "One laptop per child" support in the region
- IT-related collaborations with local-gov't authorities
- Website development for neighboring schools
- Small database development for neighboring schools
- Simple soft wares for local gov't entities in the region

## Cont'd

Short-term trainings

- Basic ICT skills
- Hardware maintenance & troubleshooting
- IT-Essentials 1 & 2
- CCNA 1, 2, 3 and 4
- CCNA security
- CCNP
- Server OS administration
- Fiber optic training
- Software design & dev't



## Cont'd

Research interests

- E-Waste Management
- Sensor Networks
- Data mining



### 3. Previous Experiences

- Imbuto Foundation best performing girls' training
- Computer refurbishment project
- Regular short-term trainings
- Regular IT-Lab holiday program



### Question & Answer

### ET department Goods & Services

by

NSHIMIYIMANA Arcade (ET)

### 1. TCT ET, Areas of competence

1. Manufacturing of electronic items:  
e.g. Multi-meter, power supply, PCB design
2. Repair and maintenance of electronic devices and telecommunication infrastructures
3. Cabling system and antenna technology
4. Embedded microcontroller technology
5. Wireless and mobile communication technology
6. Control system and automation using PLC technology
7. Robotics technology

### 2. ET Research, Dev't & Production Services

#### Research & Development

- Robotics
- Fiber (fiber to the home; FTTH)
- Industrial automation based PLC
- Sensor applications

### Cont'd

#### Community outreach

- Working with TVET schools in order to strengthen their capacity and share resources  
(Northern Province will be the focal point)
- Conducting a research of how the community surrounding the College uses electronic devices, advice them and teach them the basics for a better usage.



## Cont'd

Consultancy

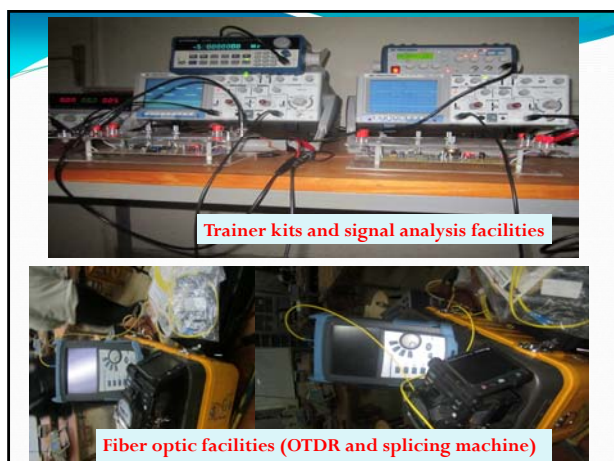
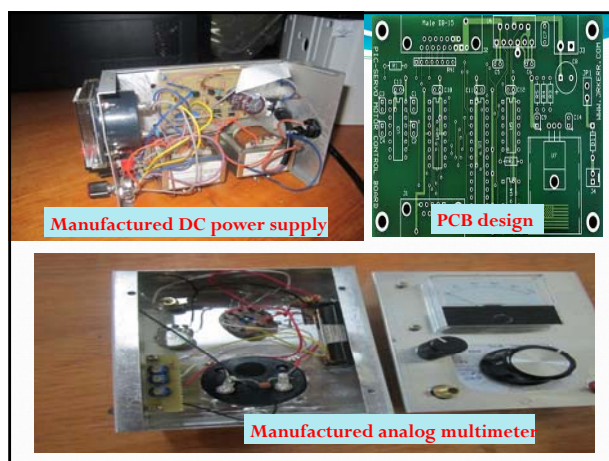
- Repair and maintenance of electronic devices
- Control system and automation using PLC
- Robotics
- Design and installation of Voice over IP (VoIP) system
- Control system by using microcontroller
- Community radio
- Fiber optic system installation and troubleshooting



## Cont'd

Production

- Power supply
  - Ammeter
  - Stabilizer
  - Training kits
  - PCB design
  - Design and installation of VoIP system
  - PC refurbishment
- manufactured



## Cont'd

Short-term trainings

- Repair and maintenance of electronic devices
- Antenna and Cabling system
- Industrial control system and automation
- Security systems/alarm based system
- Electronic software

### 3. Previous Experiences

- Training in PC refurbishment
- Participation in Robot contests in national and international
- Installation of VoIP system in TCT
- Manufacturing of some electronic devices

#### Previous Experiences: Computer refurbishment



- Students from higher learning institution in PC refurbishment in TCT May to June 2013.

#### Previous Experiences: Robot contest



- The picture shows the Robot that are made by TCT and one the Robot has won an award of the most innovative robot in last May Robot contest held in Nairobi, Kenya.



#### Previous Experiences: VoIP system



- This network is used to save money because it is possible to make calls between smart mobile phones; computers and digital phones (office phones) freely whenever they are in the same network.

### Previous Experiences: Manufactured electronic devices



- The picture shows the devices which are produced in ET department as manufactured electronic devices, an ammeter and a power supply.

### Question & Answer

### AE department Goods & Services

by

BAKUNDUKIZE Cleophace (AE)

### 1. TCT AE, Areas of competence

1. Solar energy technology
2. Biogas technology
3. Micro Hydro power
4. Biomass and Improved cook stoves

### 2. AE Research, Dev't & Production Services

#### Consultancy (Design & Construction)

- **Solar thermal**
  - ✓ Solar dryer
  - ✓ Solar cooker
  - ✓ Solar water heater
- **Biogas technologies**
  - ✓ Domestic
  - ✓ Institution
- **Solar PV**
  - ✓ Stand alone
  - ✓ Centralized
  - ✓ Grid connected



### Cont'd

#### Consultancy (fabrication)

- **Improved Cook stove**
  - ✓ Urban stoves
  - ✓ Rural stoves
  - ✓ Testing
- **Briquette making**
  - ✓ Briquette molds
  - ✓ Briquetting
  - ✓ Testing



Cont'd

#### Products

- **Solar thermal**
  - ✓ Solar dryer
  - ✓ Solar cooker
  - ✓ Solar water heater
- **Briquette making**
  - ✓ Briquettes
  - ✓ Briquettes molds
- **Improved Cook stove**
  - ✓ Urban stoves
  - ✓ Rural stoves



Cont'd

#### Short-term trainings

Design, Installation, Repair and Maintenance of the following technologies;

- Solar thermal
- Solar PV
- Biogas technologies
- Biomass technology
- Micro Hydro technologies

Cont'd

#### Community outreach

- Trainings in briquette making
- Briquetting testing
- Fabrication and dissemination of improved cook stoves
- Trainings in solar PV
- Trainings in Biogas



Cont'd

#### Research & Development

We intend to conduct researches in the following areas;

- Suitable feeding materials for biogas in Rwanda
- Reduction of hydrogen sulfide/H<sub>2</sub>S in peat
- Assessment of solar eradication level in different areas for proper designing of solar systems

### 3. Previous Experiences


#### Community out-reach

- Constructed biogas plants for neighboring secondary schools and some community around
- Improved cooking stoves and briquetting technology to community around were trained to villagers near by
- Electrical installation for families near the college.

#### Short-term trainings

- Design, Construction and maintenance of biogas and Solar energy system.
- Training in ICS and briquetting technology.
- Solar PV technologies


**Question & Answer**


**Integrated Polytechnic Regional Center**  
 - IPRC North -  
**Tumba College of Technology (TCT)**


**RESEARCH, DEVELOPMENT AND  
 PRODUCTION UNIT (RDPU)**  
**Overview**

**By Kamanzi Emmanuel**  
**Director of RDPU**


*We contribute to the development of this country through  
 hands on skills in technology*


**Presentation Contents**


1. Research, Development and Production Unit (RDPU) overview
2. Uniqueness of the TCT RDPU
3. Types of Activities
4. Working with our partners


**1. TCT RDPU Overview**

- **Vision**
  - ✓ To become a technology based service provider oriented to innovation and market needs
- **Mission**
  - ✓ To establish a continuous capacity development system within TCT that provides an opportunity to **improve practical skills** and **generates income**


**Main Key Points of “TCT Production Unit” Activities**

- 1) **Capacity Building of Staff and Students**
  - Learn latest technology and gain practical experiences
  - Learn the needs of the industry and communities
  - Feedback to “practice-oriented” Education of TCT
  - Seeds for Further Activities
    - Incubation, Entrepreneurship, Career Development Support
- 2) **Income Generation**
  - Sustainability towards further activities


**2. Uniqueness of TCT RDPU**

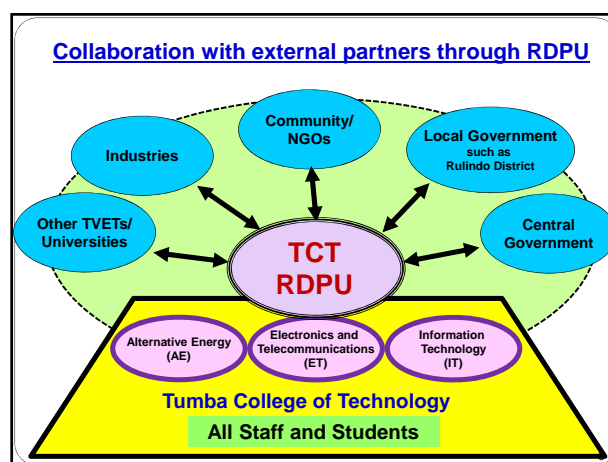
**1. Staff capacity development based on RDPU activities**

Starting point:

- How can we continue to improve the quality of “practical” education in this fast-changing technology based society?
- We need to find more innovative ways to upgrade the knowledge and skills of our TVET trainers.

RDPU:

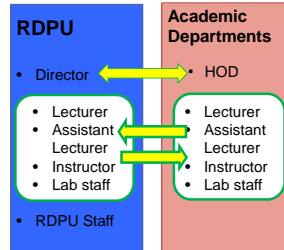
- Functions as a “link” between TCT and external partners
- Enables TCT to learn about the latest technology and the needs
- Builds a “continuous” capacity development system within TCT



## 2. Uniqueness of TCT RDPU cont'd

### 2. Working Structure of RDPU

- Balancing teaching and RDPU activities
- Staff take turns to be involved in RDPU, giving equal opportunities for capacity development
- RDPU involved staff goes back to departments to utilize acquired skills and knowledge



## 2. Uniqueness of TCT RDPU cont'd

### 3. Products and Services based on skills

- TCT skills-based products and services
- R&D based innovations to provide new technologies and solutions
- Utilization of TCT's comparative advantages to contribute in where the assistance is required

## 2. Uniqueness of TCT RDPU cont'd

### 4. Linking RDPU experience with carrier support

- Working together with TCT incubatees through joint venture to provide start-up business opportunities
- Enabling students' final year projects to be more business oriented, and develop entrepreneurship spirits
- Providing more feasible business ideas for TCT students
- Improving employment opportunities through expanding the network with the industries

## 3. Types of Activities

- Research & Development
- Production
- Consultancy
- Short term trainings
- Community outreach

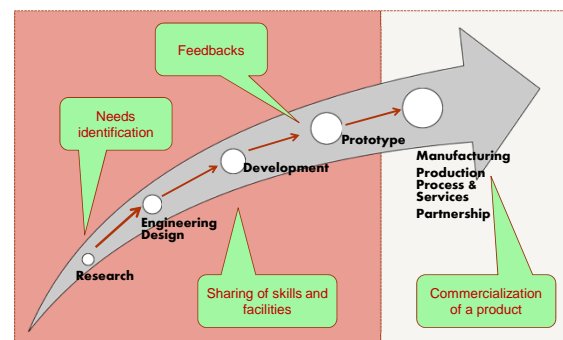
**Backed up by TCT skills and innovations with strong initiative**

## 4. Working with our partners

In order to enhance the quality of RDPU experience, we intend to work closely with our partners in the following areas;

- New product development
- Existing product improvements with innovations
- Joint venture with private companies to enter into TCT technologies oriented business together

### Example: Partnership in product development





It is Time to Work and Doing Great...Never stop!!!

**Thank you for your attention**



## TUMBA COLLEGE OF TECHNOLOGY



November 27, 2013

1

## Content

- Overview
- IT department
- ET Department
- AE Department
- Kigali ICT Training Center
- TAG
- IA Support
- Incubation Center
- Entrepreneurship Support
- Employment Support
- Surveys
- Alumni association
- Achievements
- Challenges
- Conclusion

2

## Overview

Name: Tumba College of Technology  
 Address: P.O. Box 6638 Rulindo, Northern Province  
 Kigali liaison office – P.O. Box 6389 Kigali  
 Web-site: <http://www.tct.ac.rw>  
 Established: August 2007  
 Departments: Information Technology (IT),  
 Electronics and Telecommunications (ET)  
 Alternative Energy (AE)  
 Study period: 2 years (4 semesters + Industrial Attachment)  
 Students: Full time: 1544 (675 Graduated, 260 completed waiting for graduation, 609 current)  
 Part time: 810 (790 finished, 20 current)  
 Staff: 96 Staff in total (81 Male, 15 Female)  
 (53 Academic, 25 Admin, 3 Tech & 15 Support)  
 Supporting Donor: Japan International Cooperation Agency (JICA)

3

## IT Department

- Hardware
  - Assemble PCs Board based
  - Troubleshoot and repair for PCs and peripherals
  - Upgrade PCs
  - Computer refurbishment
- Network
  - Install LAN with Internet servers
  - Administrative LAN
- Software development
  - Application software
  - Web application
  - Business application

4

## ET Department

- Repairs, Assembly and maintenance of electronics devices
- Electronic circuit devices
- High frequency circuit technology
  - Radio receiver
  - TV receiver
  - Personal computer
  - Radio/TV transmitter
  - Automatic control system for industries
- Robotic Technology
- Cable communication
- Digital network
- Optical fiber technology
  - Fiber
  - Optical devices
  - Photonic network
  - Wireless

5

## AE Department

- Solar energy Technologies
  - Stand alone systems for home use, small business, schools, etc
  - Centralized systems for Commercial business, Hospitals, Universities etc
  - Grid connected systems for power generation, industries and communities
- Biogas, Biomass energies
  - In biogas we offer from small size of 4 m3 to larger size plants over 1000m3
  - Biogas burner manufacturing
  - For biomass, Briquette molds and briquettes are fabricated within TCT
- Hydropower technologies
  - Pico and micro hydro power generation
  - Electrical systems of hydropower
  - Mechanical parts

6



## Kigali ICT Training Center

- Short courses trainings in IT
  - Cisco IT Essentials
  - Advanced Networking & Server OS Administration
  - Software design and development
- Profession trainings
  - CCNA,
  - CCN security,
  - CCNP,
  - Fiber optic connection
  - More to come soon (Microsoft, Oracle, Red Hat, etc..)

7

## Technical Advisory Group

TCT has established Technical Advisory Group consisting of the stakeholders related to each department. It has the following functions.

- To identify the needs in the industry
- To keep up the curriculum relevant to the industrial needs
- To establish networks among the stakeholders and the school



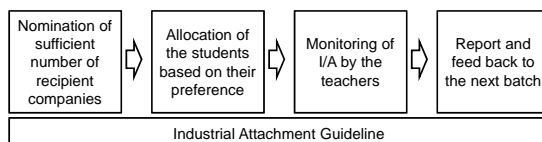
TAG Workshop for AE Department



Student presenting his project in IT-TAG

8

## Industrial Attachment Support



Students on industrial attachment at hydro-power station



Monitoring of industrial attachment by IT instructor

9

## Incubation Center

TCT has recently established an incubation center with minimum facilities such as office spaces with office automation equipment, internet access, etc.

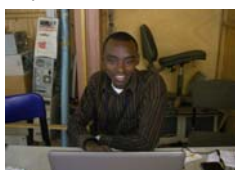
The concept is to put young graduates together working with industry experts on the real clients' projects

10

## Entrepreneurship Support

TCT supports students to start their own business by providing necessary information such as company registration procedure, soft loan information, technical support and so on.

Entrepreneurship Guideline was prepared and is accessible to any student.



Mr. Mutsindashaka Marcel,  
CEO, UMUSEKE LTD



On-line magazine operated by Mr. Marcel

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## Employment Support

TCT has established a system that students can find their jobs during the school period. Any student can access to the employment information so that they can select and contact companies for their job placement.

The information of the potential companies is data-based by filling up the Job Opening Sheet. It includes vacancies and salary level as well.

Life skills helpful for employment are provided to the students through consultation by ORI office.

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## Surveys

- Tracer survey
  - Status
  - Satisfaction
- Employer satisfaction survey

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## Alumni Association

TCT Alumni association was launched on August 11, 2012 with exhibitions from TCT graduates successful entrepreneurs including: UMUSEKE Ltd, PROMO Engineering Ltd, RENERG(R) Ltd and The MOMENT Technologies Ltd.

This Association promotes the sense of unity among TCT graduates as well as strengthens the link among graduates in industries and TCT. It is expected that this network will lead to positive impacts to students' employment too.

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## Achievements

- Employment rate: over 77%
- Employers' Satisfaction: over 97%
- Curriculum developed and reviewed by Industry – TAG
- TCT qualified to become EAC center of Excellence
- Best CISCO local academy Award – East Africa 2010
- TCT became CISCO Region Academy - Nov 2011
- CISCO Academy curriculum excellence – 2012
- CISCO Best Male and Female Instructors - 2013
- Robotics technology competitions – technical facilitator

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## Kigali ICT Training Center facility



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## CISCO Award



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## Challenges

Most companies don't see immediate gains in receiving students in the training process

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## Conclusion

We need a policy that creates incentives for companies to receive students in the training process

Partnership between Technical Education & Industry is the way to go for a successful TVET

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Thank You!

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## **RDPU Launching Ceremony**

### **Summary of Guest Comments and Ideas for the Way Forward**

#### **1. General comments**

Rulindo District Mayor:

- The achievement of TCT in the past 6 years is worth noting, and today we learned how highly motivated TCT teachers are to move forward even further. TCT is not an ivory tower, it has integrated so much with the community in the past, and we would like to see more activities like that in the future, too.
- Rulindo district office hired a female TCT graduate for its IT department. She has been demonstrating very high skills, and I appreciate TCT to also train girl students like her.

Practical Action Consulting:

- We worked with TCT on improved cook stoves in the past. We also involved TCT graduates in the past projects, used TCT's facilities for stove testing, and designed the stove together with TCT. With the support of TCT we successfully implemented the 1st year project. We would like to see more possibilities to work with TCT to carry out projects together.

#### **2. Question and Answers**

<General issues>

Q: TCT has IT center in Kigali. Why don't you connect the center with ET technologies also? Various trainings, such as CCTV installation and maintenance, are needed but people don't find where they can get trained on such technologies.

A: - We are currently challenged by unavailability of space, but discussing with the Ministry of Education to duplicate similar service centers in other places, such as Gichumbi. When we realize this idea, we would like to utilize all of our technologies, not only IT or ET, and offer complete packages.

**Note:** - There was a comment from Rulind District Mayor that there are some unused schools and facilities in the Northern Province which TCT can use for provisions of trainings.

Q: What is the RDPU mission in terms of production? Market can be bigger, how are you going to mass produce your product to meet the needs, making sure to also keep the quality and costs?

A: - We want to work together with the industry. Mass production is not TCT's business, if needed we can find a partner to mass produce TCT products.

- If we are able to pass on our technologies to external partners for rolling out, we are more than happy. It is a success if we can disseminate our technologies in bigger quantity and create jobs.

Q: How will RDPU intend to support students' final year projects?

A: - We are still planning on how and what kind of support we can provide to students. We would like to develop a selection mechanism to encourage students to come up with more creative ideas.

<AE related issues>

Q: AE in the near future tries out wind energy technologies?

A: - As an academic institution, we'd like to take to try out in the future to see whether there is a potential.

Q: Biogas has a good potential in Rwanda. In your research interests, you mentioned suitable feeding materials, but why don't you also try to do a new design, which is more cost effective and fits to the context of Rwanda?

A: - Our research interests shared in the presentation were not exhaustive. Now that we have this strong unit, we would like to conduct various researches also to back up the quality of our products.

- As for the cost effectiveness of biogas, we have conducted a research together with SNV and EWSA on the design of domestic biogas. We came up with new designed called Rwanda 1, 2, and the cost has been reduced by 200 thousand RWF (30%) with a new model. We can now choose different designs, from brick, stone, camartech etc., depending on the conditions of a location.

Q: We need to improve the quality of improved cook stoves, especially its maintenance, so that consumers will become more confident in using the technology. Is TCT also in a position to work with RBS (Rwanda Board of Standards) to set the quality standard of improved cook stoves and advocate the technology? As of now, different people have changed their designs as well as standards and this is affecting the technology on the market.

A: - For our products, we are looking at the costs as well as standards. We do our best to make sure that the produced stove meets the required standards in terms of smoke, efficiency as well as durability.

- We would like to see a possibility to work together with other organizations such as RBS in the process to disseminate new technologies in Rwanda. Where necessary we will work together with the concerned entities/RURA/EWSA and see if this can be enforced.

<ET related issues>

Q: How well is the PLC technologies currently practiced in Rwanda?

A: - PLC is a new technology. Currently in Rwanda, only big industries like Brarillwa has installed a PLC system in the factory.

Q: What are the general costs of fiber optics installation?

- A: - Installation cost is around 100 million RWF, including machines to connect fiber optics, and optical power-meters to test the connection speed etc.
- TCT has made a MSPP network. We can provide some service, using internal network technology.

<IT related issues>

Q: AE in the near future tries out wind energy technologies?

A: - As an academic institution, we'd like to take to try out in the future to see whether there is a potential.

Q: How many students have been trained in CISCO so far?

A: - 810 students have been trained at Kigali Center alone. TCT students also all go for CISCO training, so the total is more than 2000.

- CCNA 1-4 have also been integrated in our curriculum. Our policy is to teach IT networking in CCNA, so all students who successfully complete our program will become certified.

Q: Is there a possibility to provide IT trainings for public institutions?

A: - So far we have not yet made a partnership with public institutions, since public institutions are receiving the services of RDB. TCT can, however, provide capacity development courses to private sector people. We would like to see how we can strengthen our service more.

### 3. Feedbacks from guests/ Seeds for a next project

	Items	Comments
AE	<ul style="list-style-type: none"> <li>General</li> </ul>	<ul style="list-style-type: none"> <li>Practical Action Consulting showed interest to work with TCT RDPU in the areas of TCT's expertise. They suggested TCT to work with their regional consulting company in Kenya which is based in Kenya.</li> </ul>
	<ul style="list-style-type: none"> <li>Short-term trainings</li> </ul>	<ul style="list-style-type: none"> <li>Interests were shown on industry targeted short term trainings in energy sector.</li> </ul>
	<ul style="list-style-type: none"> <li>Biogas</li> </ul>	General comments; <ul style="list-style-type: none"> <li>Design new structures comfortable in Rwanda</li> <li>Biogas technologies must be well explained in rural area in term of feeding ratio.</li> </ul>
	<ul style="list-style-type: none"> <li>Solar</li> </ul>	General comments; <ul style="list-style-type: none"> <li>Production of solar PV panel or research on its fabrication should be conducted in TCT</li> <li>Solar water heaters should be distributed to local people at low price.</li> </ul>

	<ul style="list-style-type: none"> <li>Improved cook stoves</li> </ul>	<ul style="list-style-type: none"> <li>Rulindo District Mayor was interested in improved cook stoves but he advised TCT to improve stoves from volcanic rocks</li> <li>Briquetting cook stove could be promoted at market with its briquettes.</li> <li>Briquetting mold must be improved by making one which has a capacity of producing many briquettes in short time (Research topic)</li> </ul>
ET	<ul style="list-style-type: none"> <li>Multi-meter/Ohmmeter</li> </ul>	<ul style="list-style-type: none"> <li>Rulindo District Mayor was interested in distributing the products to the schools in Northern Province. Rulindo district has a fund which allows the district to make a direct contract with TCT.</li> <li>He advised the team ET department who intend to visit the schools to know the services they can get from TCT to start from Inyangye secondary school.</li> </ul>
	<ul style="list-style-type: none"> <li>Power supply</li> </ul>	<ul style="list-style-type: none"> <li>The recommendations from attendees are that we need to work on the quality, have people who are in charge of production activities</li> <li>Look for a way to advertise so that everyone is aware of what TCT is doing (through radio, newspaper or any other way to advertise)</li> </ul>
	<ul style="list-style-type: none"> <li>Community outreach and short term training</li> </ul>	<ul style="list-style-type: none"> <li>Rulindo District Mayor said that we can work together in order to distribute our technology to the surrounding community.</li> <li>He said that the District can provide a facility where we can provide short term trainings.</li> <li>Our technologies are interesting but people don't know them and can't access them; if we can add more in TCT training center at Kigali, they can attract many people (ex. PC refurbishment, fiber, microcontroller and their programming among others)</li> <li>For the products that TCT is producing, they are needed on the market; we need to see how they can reach the market.</li> </ul>
IT	<ul style="list-style-type: none"> <li>Short term training</li> </ul>	<ul style="list-style-type: none"> <li>There is need from RDF to train its staff who often join UN and AU mission in computer skills</li> </ul>

#### 4. Actions to be taken

	Actions
<b>RDPU</b>	<ul style="list-style-type: none"> <li>- Visit Rulindo District Office to discuss about the utilization of unused facilities for the provision of private short term trainings</li> <li>- Visit to SNV and demobilization commission for detail discussion of how short term training can be developed</li> <li>- Consult with practical action consulting to set modalities on what we can work together.</li> <li>- Visit to RDF to understand their requirement in terms of training they need in relation to its people who go for UN and AU mission and see if are relevant to what TCT can offer.</li> <li>- Coordinate short term training program development to meet the market need</li> <li>- To plan or be part of planning other events of the same kind so that TCT product and services can be known to many.</li> </ul>
<b>AE</b>	<ul style="list-style-type: none"> <li>- Visit neighboring cells to discuss with technology we can offer to them.</li> <li>- To train cooperatives and women associations about briquette making and its cooking stove.</li> </ul>
<b>ET</b>	<ul style="list-style-type: none"> <li>- Conduct a survey to schools in the Northern district to gain information of the needs regarding TCT products, such as power supply and multi-meter/ohmmeter. Based on the survey result, develop a plan to develop and distribute a product.</li> <li>- Regarding the distribution of power supplies and multi-meters/ohmmeters, discuss with Rulindo District how they can make a contract with TCT.</li> <li>- Plan for the training that can be provided and the District will provide some facilities (where trainings can be conducted).</li> <li>- Produce a number of prototypes and distribute around Northern Province especially in Schools and other organizations</li> <li>- Use TCT radio and TCT website to advertise</li> <li>- Provide periodic workshops on TCT technologies</li> <li>- Work with TCT graduates to link TCT with different organizations</li> <li>- TCT needs to look for MOU's with different companies and organizations (Public and Private) in order to work together</li> </ul> <p>Rulindo District Mayor said that we can work together in order to distribute our technology to the surrounding community.</p> <ul style="list-style-type: none"> <li>- He said that the District can provide a facility where we can provide short term trainings.</li> <li>- Our technologies are interesting but people don't know them and can't access them; if we can add more in TCT training center at Kigali, they can attract many people (ex.</li> </ul>



	<p>PC refurbishment, fiber, microcontroller and their programming among others)</p> <ul style="list-style-type: none"><li>- For the products that TCT is producing, they are needed on the market, we need to see how they can reach the market.</li></ul>
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Annex 12:

TCT Action Plan 2013-14

## TUMBA COLLEGE OF TECHNOLOGY ACTION PLAN 2013/2014

<b>Outcome 1: Effective teaching , learning and assessment are ensured</b>						
<b>Output 1: Academic staff is highly qualified to international level.</b>						
<b>Activity</b>	<b>Indicator</b>	<b>Baseline</b>	<b>Target</b>	<b>Tasks to deliver output – please indicate date the activities will be complete</b>	<b>Budget available (Rwf)</b>	<b>Source of fund</b>
1) Establish continuous professional development system	Academic publications and Project proposals	TCT internal regulations for further studies and publication, Internal and external trainings	Q1–Q2: Write at least 3 community outreach or income project proposal Q3–Q4: At least one domestic or international conference publication paper.	A) To create open communication between employees and management (regular meetings) B) To facilitate academic staff to conduct academic research and publication C) To invite outside presenters/researchers for quarterly external public lectures	3,040,000	GoR
	Local and International certificates	Need for Professional development	Q1–Q4: Two International certificates and Three local certificates in Professional skills	A) To organize and conduct monthly internal public lectures B) Sit for CCNA Professional Ex C)To conduct academic internal training Through JICA experts	1,650,000	GoR
2) Share and disseminate best practices among staff.	Project co-authorship, internal training reports	Existing good practice sharing method	Q2–Q3: at least one internal public lecture per month Q4: Implement project and publications	A) To organize internal trainings or workshops or public lectures B) To implement co-authorship during research activity and proposal writing	690,000	GoR
<b>Output 2:Curriculum is geared to match industry/ social needs</b>						
<b>Activity</b>	<b>Indicator</b>	<b>Baseline</b>	<b>Target</b>	<b>Tasks to deliver output – please indicate date the activities will be complete</b>	<b>Budget available (Rwf)</b>	<b>Source of fund</b>
1) Facilitate internal workshops to review the program structure for departments	Revised Curriculum (program structure and module descriptions available),Program structure reports	Existing Curriculum ( program structure and modules descriptions for three departments)	Q1:Revise curriculum (program structure and module descriptions before July 2014)	A) To organize the internal workshops to review the program structure for AE,ET and IT departments (June 31st,2014)	200,000	TCT (GoR)
2) Hold Technical Advisory Group (TAG) meetings annually in each department to get input/feedback to update curriculum and improve teaching.	TAG output reports	Existing Curriculum ( program structure and modules descriptions for three departments)	Q1–Q2: conduct TAG meeting for each department. Q3–Q4: Share good practice with local industries	A) To select industries related to Department field B) To prepare invitation letters and delivery C) To conduct TAG meeting D) To Hire TAG meeting location E) To revise curriculum and improve teaching based on recommendation from TAG	945,000	GoR
3) Conduct Industry needs survey periodically and the information gained is considered in the program development/revision	Survey data and information report	Existing Curriculum and industrial need survey	Q2–Q3: Avail information on Local industry need Q4: Share good practice with local industries	A) To collect information through questionnaire distribution and interview B) To compile collected data for information retrival C) To analyze and infer knowledge from information D) To update Curriculum based on Industrial need survey and share with Local industries through TAG	170,000	GoR

Output 3: Enabling learning environment is provided						
Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (RWF)	Source of fund
1) Facilities and equipment are available, accessible & well managed	Students/ computer ratio, Labs open 24 hours	Existing equipments	Q2: Equipment need report available Q4: Setup Testing Center for Professional Courses	A) To Select necessary equipment in each lab and workshop B) To install equipment in labs and workshops C) To Prepare reports and inventories D) To Setup a Testing Center for Professional Courses	11,640,000	GoR
	Reports	Existing equipments	Q3-Q4: Equipments available for the 3 Departments	A) To prepare and submit regularly inventory and maintenance report of department materials/equipments. B) To check and monitor day to day materials status C) To purchase equipment/materials/spare parts for update/upgrade/repair AE/IT/ET/library .. departments facilities(materials)	178,375,767	GoR
2) Self-learning resources are accessible online including e-learning contents.	learning materials and e-learning resources	TCT strategic plan, Curriculum structure and infrastructures	Q2: TCT is registered on international e-learning and e-learning server Q3-4: Internal e-learning environment available	A) To register TCT to the international e-learning content, journals etc B) To implement an e-learning environment server C) To develop internal e-learning content D) Internet Connection to the Fiber Kigali ICT center (through BSC )	10,468,774	GoR
3) Library is accessible to students with good selection of books, journals and other digital contents.	Library resources reports	Need for new books and available library	Q1-Q2: List of needed e-books based on department Q2-Q4: Purchase license	A) To display available resources (e-books,webistes) B) To select core book related to Department C) To purchase Books and licenses D) To share Library electronic recourses effectively	3,815,000	GoR
4) Enhance professional relationship between staff and students.	Teacher-Student contact hours, Class mentors and Projects	Curriculum structure	Q1-Q2: Final year project presentation and assessment Q4: New student projects	A) To avail time for students discussion (outside normal hours)/teacher B) To guide and work with students in the project (final year projects) C) To use Social media as tool of communication between student and staff D) To conduct regular meetings with student through class mentors E) To organize and participate into public lectures together with students	400,000	GoR
Output 4: Teaching, learning and assessment are conducted effectively						
Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (RWF)	Source of fund
1) Prepare T/L materials and make them available to students.	Course syllabus, curriculum and Teaching materials	Existing Curriculum ( program structure and modules descriptions for three departments)	Syllabus covered	A) To prepare teaching materials, notes & work and avail them to students B) Printing and binding of course syllabus, curriculum, etc	310,000	GoR

2) Conduct teaching and students' evaluation (Continuous Assessment Test), grading and reporting	Class diary and reports	Timetables	Syllabus covered	A) Prepare academic calendar B) Conduct lectures as per timetable C) Conduct continuous assessment test D) Conducting examinations E) Results publication	3,600,000	TCT (GoR)
3) Provide study visit to enable students to be familiar with job market.	Study visit reports	Existing curriculum structures	Q4: conduct Study visit for all Second year students	A) To list up department related companies B) To prepare study visit plan C) To distribute request letters D) To follow up by calling E) To conduct study visit and pay allowances	2,050,000	GoR

#### Output 5: Academic quality is enhanced

Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (Rwf)	Source of fund
1) Conduct evaluation for teachers and courses by students	Evaluation report	The online system for the courses and teachers evaluation by students is in place	Q2: Semester One Courses and teachers evaluation is carried out Q3: Semester one Courses and teachers evaluation report is generated and shared. Q4: Semester Two Courses and teachers evaluation by students is carried out and the report is generated and shared	A) To update the online system and the questionnaire to be used (November,2013) B) To conduct the courses and teachers evaluation by students (December,2013) C) To compile and analyze the data collected (January,2014) 2)To share the courses and teachers evaluation report in respective departments (February,2014) D) To update the online system and the questionnaire to be used (April,2014) E) To conduct the courses and teachers evaluation by students ( May, 2014.) F) To compile and analyze the data collected (June, 2014) G)To share the courses and teachers evaluation report in respective departments (June,2014)	150,000	TCT (GoR)
2) Monitor Students' attendance and teachers' punctuality to class.	Attendance and performance reports	existing curriculum structures and staff performance report	Q2: weekly class mentor attendance report Q4: imihigo Evaluation done	A) To supervise day to day classroom activities B) To print class daily report format C) To collect and monitor class dairy reports & Evaluation of Imihigo	108,000	GoR
3) Strengthen external moderation and reinforce internal invigilation of examinations.	External moderators and examinations reports	Existing reports for both External moderators and internal invigirations	Q2&Q4: Enhance academic quality through moderation and internal invigilation	A) To prepare identification of external moderators B) To Select external moderators C) To make a contract with external moderators D) Conduct moderation for examinations each semester E) To generate the report ,share it and reflect on recommendations	6,000,000	TCT (GoR)
4) Carrying out Monitoring and Evaluation of TSS and VTCs in Northern Province	The report of Monitoring and Evaluation of TSS and VTCs in Northern province is available		Q2: First Monitoring and Evaluation of TSS and VTCs in Northern Province is carried out	A) To Identify TSS and VTCs in Northern Province (October,2013) B) To prepare the schedule and guidelines to be followed (November,2013) C) To conduct Monitoring and Evaluation exercise (December,2013)		

			Q3: The report of First Monitoring and Evaluation of TSS and VTCs in Northern Province is generated and shared	A) To generate the report of first Monitoring and Evaluation of TSS and VTCs in Northern Province is (January,2014) B)To generate the report of first Monitoring and Evaluation of TSS and VTCs in Northern Province and	1,620,000	TCT (GoR)
			Q4: Second Monitoring and Evaluation of TSS and VTCs in Northern Province is carried out, the report is generated and shared.	A) Preparation of the schedule to be followed(April, 2014) B) To conduct the second Monitoring and Evaluation of TSS and VTCs in Northern Province (May,2014) C)Analyze the data, generate the report and share it (June, 2014)		
5) Conduct Tracer survey annually to understand the situation of the graduates.	The tracer survey report is available	The guidelines of conducting a tracer survey are in place	Q1&Q2: Tracer survey is carried out  Q2:Tracer survey report is shared	A) To prepare the graduates' list with their telephone numbers (July,2013) B) Training of enumerators (August,2013) C) Conducting the tracer survey (September–October,2013) D) Sharing the tracer survey report with TCT stakeholders (November–December,2013)	5,500,000	TCT (GoR)
<b>Outcome 2: Career support system for students is reinforced</b>						
<b>Output1: General career support activities are provided</b>						
Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (RWF)	Source of fund
1) Establish career support office.	career support office	Need for career guidance	Q3: available career support office with infrastructures	A) To purchase office furniture, office Printers, Projector and consumables	3,156,000	GoR
2) Provide career support services	Career support services reports	Need for career guidance	Q4: Provide career services to all students	A) To plan and organize TCT career day B) To organize regular professional career coaching & public lectures	1,349,000	GoR
3) Develop admission requirements and make it available to the public and guide students in department selection	Reports	Existing admission forms	Q4: Admission requirements on TCT website	B) Post the requirements on TCT website and make them available to students	0	
	Induction week is undertaken	Academic calendar	Q1: Guidance to selection of departments is done effectively	A) Develop allocation criteria for new students B) Organize a workshop on guidance for department's selection C) Departments allocation and publication of outcome D) To generate the report ,share it and reflect on recommendations and keep records	0	TCT (GoR)
4) Update entrepreneurship guideline	Updated entrepreneurship guideline	Existing entrepreneurship club	Q3: updated version of entrepreneurship guideline	A) To Supervise entrepreneurship club members to draft guideline B) To mobilize inputs from other stakeholders C) To present & finalize guidelines/ document	110,000	GoR

5) Set up an incubation center.	incubation center operational and facilities report	Existing incubation center	Q2: incubation center with furniture and facilities Q3: Guidelines available	A) To gather information from existing incubation centers & stakeholders B) Drafting incubation center guidelines C) Presenting & finalizing guidelines/ document D) coordinating the selection process for incubates E) Allocating workstations to selected incubates F) Organizing regular, capacity-building tailor-made trainings for incubates	1,084,000	GoR
6) Strengthen alumni association.	Alumni activities reports	existing alumni	Q2: Final information on alumni members Q3: Alumni day conducted	A) Organizing annual alumni day B) Implement effective communication tools btn alumni & tct community C) Inviting successful members of the alumni to inspire students @ TCT	873,000	GoR
7) Implement Industrial Attachment program to mitigate the expectation gap between the industry and students.	Industrial attachment reports and assessment results	Existing Curriculum ( program structure and modules descriptions for three departments)	Q1-Q2: conduct Industrial attachment for three departments	A) To list up companies B) To prepare application letters C) To distribute letters to the companies. D) To make follow up by call E) To allocate places to students and Student allowance. F) To conduct call monitoring of industrial attachment activities. G) To conduct physical monitoring of industrial attachment activities	19,875,000	GoR
8) Promote students' innovation through academic competition.	Competition reports	Existing clubs	Q4: conduct one student competition per club	A) To organize inter departmental innovative projects B) To procure necessary materials for competition C) To support innovation clubs (English club, robotic club, etc)	1,300,000	GoR

**Outcome 3: Interactive relations with stakeholders for mutual benefits are strengthened**

**Output1 : Relationship with industries is enhanced**

Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (Rwf)	Source of fund
1) Update companies database	Database	Existing database	IT, ET and AE related companies information	A) Contact RDB company registration office. B) Contact PSF (Relevant chambers) C) Establishment of the database D) Establish communication with selected companies	0	
2) Conduct employers' satisfaction survey periodically	The employers' satisfaction survey report is available	The guideline to conduct employers' satisfaction survey is in place.	Q3: The employers satisfaction survey is carried out	A) To prepare the employers list with their telephone numbers (January,2014) B) Training of enumerators (February,2014) C) Conducting employers satisfaction survey (March,2014)	6,200,000	TCT (GoR)

			Q4: The Employers satisfaction survey report is generated and shared	A) To analyze the collected data and generate the report (April & May,2014) B) To share the employers' satisfaction survey with TCT stakeholders (June,2014)		
3) Stakeholders meetings are held for frequent interaction.	MOUs	TCT strategic plan, Curriculum structure and infrastructures	Q4: sign at least two MOUs	A) To visit companies/academies for establishing long term cooperation B) To conduct mutual projects	258,000	GoR

**Output 2: Academic relationships with both local and international institutes are enhanced.**

Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (Rwf)	Source of fund
1) Participate in skills competition with other institutions	Participation report and certificates	Annual local and international competitions	Q4: Win best competition place	A) Participate in the National and International Level Cisco Students' Competitions B) Attend and participate in Cisco East African Annual Conference C) Attend and participate in East African Annual Robotics context D) Attend and participate in WDA exhibition	7,170,000	GoR
2) MOUs are exchanged which enhance the ties between institutions in specific areas of interest.	MOUs	Need for Mutual cooperation	Q4 Sign at least three MOUs with local institutions	A) Visit the potential Cisco Academies to get trainings (in Cisco curricula) from TCT Instructor training Center as one of the process for the verifications of fulfillment of the requirements. B) Visit local institution like REB, RDB..for MOUs proposal, discussion and signing	675,000	GoR

**Output 3: Production, consultancy and R/D are promoted**

Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (Rwf)	Source of fund
1) Set Up a Production Unit	1. The Guideline is in place 2. Workshop on guideline 3. PU Launch ceremony	PU concept		A) Drafting the Guideline B) Collecting information from Other institutions for learning C) Workshop on guideline D) Internal seminar E) PU Launch ceremony F) Presentation of PU experience	3,450,000	TCT (GoR)/ other sources
2) Industry Need Survey	Reports	Existing companies database	Q2: 50 companies, 15 Gov Institutions, 10 NGO, 5 districts in Northern province surveyed	A) Make TCT inventory and questionnaire B) Conduct the need survey C) Compile survey data, analyze the data and report	17,000,000	JICA/ GoR
3) Practical skills development	Number of trained staff  Centralized and grid connected PV system  Energy lab/ Facility	2009, 2010 Biogas training and solar water heater training  300w stand alone system in TCT compound  Existing solar equipments	AUTO CAD Training  10 Kwh  Full system in place	A) AE,ET, IT trained by experts B) Study visits  B) Installation of centralized and grid connected PV system  C) Energy lab/ Facility	     670,000,000	     TCT (GoR)/ other sources



	Biogas and biomass Facility	Existing bio mass lab	4 biogas units in place	D) Biogas and biomass Facility		
	Control system based on automation .	Existing equipments	Control system in place	E) PLC and ADAM application in PID control, PCB manufacturing, Sensor applications		
4) Income generation	Number of Proposals and signed contracts	Previous projects (EWSA, ICRC. RCS)	1000000USD	A) Proposal making and contract negotiations B) Projects management	302,000,000	TCT (GoR)/ other sources
5) Community outreach	Reports, MOUs	TCT Technologies and Previous projects (Computer refurbishment, Briquette making etc)	2 Community outreach in each Department (IT,AE & ET)	A) Trainings to community in areas of IT, ET, AE B) Establishing collaboration with industry and other partners C) Solar water heater product evaluation with SORWATHE D) ICT outreach for community	18,300,000	TCT (GoR)/ other sources

#### Outcome 4: TCT Corporate image is promoted

#### Output 1: TCT awareness within Rwanda and EAC is promoted

ACTIVITIES	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (RWF)	Source of fund
1) Increase promotional materials.	News letter, Brochures, departmental concept, Banners available	Brochures,Depts concept & pull up banners.	Q1–Q4: Brochures:1000,T-Shirts 300,Folders 200,Caps 300 & 10 pull-up banners	A) Printing of brochures. B) Printing of T-Shirts. C) Printing of folders D) printing of flyers, pull-up banners.	7,500,000	GOR
	Information available on TCT website .	information available in TCT brochure	Q1–Q4: All information should be gathered & put on TCT website	A) Information in all units/depts on special events is gathered. B) Consolidate collected information C)Put the information on TCT website and keep Updating it.	0	
	Adverts in TCT News letter, popular websites &TCT website	TVR, website, news papers & Radios face book, Twitter.	Q1–Q4: Work on adverts and put them in media	A) Review the collected information from units/depts. B) Select the event/information to be put on the website, media & TCT News Letter. C) Estimate cost and ensure budget for adverts in media	8,000,000	GOR
2) Upgrade and Update TCT website	1.Frequency of updating information 2. Number of visitors	Existing website	Q1–Q4: 12 articles.	A) Upgrade TCT website to make it attractive B) Up load information on TCT website and keep on updating	0	
3) Prepare events for TCT awareness.	Participation in Exhibitions	TVET Expo	Q1–Q4: All events to be shared with media	A) Communication through media. B) Plan events C) Select effective media for coverage D) Prepare press release to media. E) follow up of media	0	GOR

<b>Outcome 5: Effective Accountability is Ensured</b>						
<b>Output1: Policies and Procedures are well developed and implemented</b>						
Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (Rwf)	Source of fund
1) Finalize TCT Strategic plan	Fair copy is available	TCT Strategic plan draft	Q1: Revision and presentation of the strategic plan is done	A) Organize a workshop for the revision of the draft B) Incorporating all the ideas in draft C) Organizing a workshop for the sharing/ presentation of the fair copy and its approval	0	
2) Finalize and approve Guidelines/ Procedures/ Manuals	Guidelines/ Procedures/ Manuals are approved and implemented	Existing guidelines	Q2: HR guidelines, Financial guidelines, Procedure manuals.	A) Check how many guidelines/procedures/manuals are developed or in process B) How many needs to be developed, by who? and Monitor the exercise	0	
3) Avail and implement policies and Procedures	Workshop on HR Policies	Approved HR Policy and Manual of Procedures	Q2: Workshop is done	A) Organize a workshop of all staff on HR Guidelines B) Distribution of HR Guidelines to All staff	0	
4) Monitor regularly the compliance of the policies	Record any hindrance with regards to the implementation of the	Approved HR Policy and Manual of Procedures	Q: 4 Review	A) Conducting annual evaluation on the compliance of the policies B) Incorporate the results from the evaluation in the	0	
<b>Output 2: Audit is conducted and the recommendations are fully implemented</b>						
Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (Rwf)	Source of fund
1) Prepare the audit process	Audit Plan is available	Previous planning	Q1: To be guided by annual audit plan	A) Prepare the audit Plan B) Implement and Perform the Audit Plan C) Communicate the Outcomes	0	GoR
2) Follow up and implement	Audit Reports	Previous audit reports	Q1–Q4 Conducting audit 100% of	A) Follow up audit recommendations B) Report on implementation status	100,000	
3) Produce periodic reports	Periodic Reports	Previous reports		A) Review Financial Report ( Monthly and Quarterly) B) Produce audit report after any assignment, Quarterly and Annual Report	100,000	GoR
<b>Output 3 : Planning and reporting are properly conducted</b>						
Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (Rwf)	Source of fund
1) Preparation of management meetings	1. Management Meetings done every first Monday of the Month  2. All documents available( Agenda, Interim report& Monthly calendar) every month	1. Management meetings done for the past months  2. Management meetings are done every first Monday of the month	Q1–Q4: Preparation done on time/ effectively	A) Checking the outstanding matters and assignments  B) Requesting the information about the outstanding matters and assignments from the responsible persons in written C) Delivering the monthly calendar to DAHR, DF, HODs, DAS, DOS, PRO and Procurement Officer to have planned activities written in the corresponding month by them  D) Collecting the interim report or the final report about the progress of the outstanding matters and assignments if possible to present in Management Meeting	0	

				<p>E) Collecting the monthly calendars with activities written from the people above mentioned</p> <p>Compiling all activities informed in the final version of monthly calendar</p> <p>F) Collecting and listing the topics that is requested to be discussed in Management Meeting</p> <p>G)Collecting the interim report or the final report about the progress of the outstanding matters and assignments if possible to present in Management Meeting</p> <p>H) Finalizing monthly Calendar</p> <p>I) Confirming the agenda with the principal on the list of topics to be discussed and Monthly Calendar</p> <p>J) Making copies of all documents</p>		
2) Report on Management meetings	Approved Minutes available to all members Monthly	Minutes for the past Meetings	Q1-Q4: Minutes approved and filled Monthly	<p>A) Sharing the minutes of meeting with all stakeholders</p> <p>B) Monitoring planned activities</p> <p>C) Filing all documents</p>	0	
3) Insure proper planning and reporting	Quarterly and Annual reports	Action plan	Q1-Q4: 1 report per quarter	<p>A) Prepare format/template of reports/plans to be shared with each department/office level.</p> <p>B) Supervise and consolidate action plan , operational plans</p> <p>C) Monitor and evaluate the action and operational plan implementation</p> <p>D) Prepare quarterly retreat /planning &amp;result achieved</p> <p>E) Collect and consolidate and submit, quarterly, and annual reports</p> <p>F) Maintain filing of the documents.</p>	200,000	GoR
<b>Outcome 6: Effective Management to support TCT activities is ensured</b>						
<b>Output 1: TCT awareness within Rwanda and EAC is promoted</b>						
Activities	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (RWF)	Source of fund
1) Report to MINECOFIN, WDA and AOG	Number of reports		Q1-Q4: 1 Report every month Q4: Annual report	<p>A) Processing payments on time</p> <p>B) Entering data in the system (SAGE-Pastel)</p> <p>C) Request for bank statement from all our bank accounts (BNR, BK and BPR)</p> <p>D) Bank reconciliation of all bank accounts</p> <p>E) Reconciliation of books of accounts</p> <p>F)Identifying all receivables and Payables</p> <p>Produce list of creditors and debtors to support the financial statement</p> <p>Produce and update the list of assets inventory to support the financial statement</p> <p>G) Produce the report for Verification and approval</p>		GoR

				H) Submitting Financial report to MINECOFIN and WDA Identify miss posting errors Record grand in kinds in the books of account Make necessary correction and adjustment Submit to MINICOFIN ,OAG and WDA		
2) Insure internal financial control system	% of completed activities plan	Existing Reports, Financial manuals	Q1:-Q4: 80% of activities achieved	A) Plan and monitor Fin Department weekly activities B) Implement audit recommendations C) Declaration of Taxes to Rwanda Revenue Authority, Withholding 3%, Withholding 15% and VAT 18% ) D) Verify support documents properly E) Stamp invoice paid "PAID" F) Follow up income from different debtors G) Record invoice and checks in the register H) Comply with Gvnt policies and procedures Record each debtor and creditor in his proper account in the system I) Provide a training to Finance staff ( sage pastel) I) Organize study tours in other Universities J) Prepare ToR for consultancy Co for adjustment of the annual report . K) submit and follow up with procurement Office L) Supervise the Consultancy Company	4,500,000	
3) Prepare and monitor TCT budget	Period of budget preparation and monitoring	Existing annual budget	Q1-Q2: Budget execution is available at 30th of each month  Q3-Q4: Quarterly report on Budget	A) Set Cash flow plan annually and monthly B) Implement the budget each month C) Monitor the budget each month A) Prepare the quarterly spend out plan B) Present to management the budget execution and spent out plan each quarter C) Budget revision based on Gvrnt instruction D) identifying the needs for all departments E) Integrate the Departmental needs into the Budget lines provided by MINECOFIN F) Allocate the amount into each budget line G) Reconciling the Action plan with the Budget H) Approve the budget in management meeting		GoR
4) Insure the recovery of students fees using the software SRS ( Student Registration System)	- Number of students registered '- Amount of expected income from Students	- List of student, fee structure Existing Financial reports	Q1: 396 000 000Rwf expected against 600 students , -360,000,000/tuitions  - 15,000,000/registration 7,500,000/caution fees for 300 students ( Y 1)	A) Identify the appropriate system  B) Prepare specifications of system C) Submit specs to procurement Office D) Make a follow up until delivery of the system	40,000,000	GoR

			13,500,000/accommodation /9 months	E) Train appropriate staff about the SRS ( students registration System) F) Follow up of functioning of new system G) Inform students /Debtors on quarterly basis H) Monitor the effectiveness and efficiency of SRS		
<b>Output 2: Procurement is effectively handled</b>						
Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (Rwf)	Source of fund
1) Preparation of procurement plan	Procurement plan 2013	Action plan 2013 – 2014	Q1: Publications done	A) Sharing procurement with user departments B) Publication of the plan on websites & news papers C) Submission of the plan to RPPA	0	
2) Procurement process	Plan implemented	Procurement plan	Q1 – Q4: all tenders awarded on time	A) Preparation of bidding document B) Publication of tender notice C) Receive & safe keep bids D) Request Authority to recommend the award of E) Prepare notification letter for all bidders F) Prepare & monitor contract execution in collaboration with the beneficiary department G) Provide information & documents to RPPA & OAG H) Bids opening I) Bids evaluation J) Filling of all tender documents	1,000,000	GoR
<b>Output 3: Asset Management is properly handled</b>						
Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (Rwf)	Source of fund
1) Handle asset inventory	Period of reporting and	Existing TCT Assets	Q1:-Q4: 30th of each month  Q1:-Q4: Every time after movement ( in/out)	A) Codification of Assets B) Monthly physical counting of assets C) Maintain proper books of assets D) Make a list of disposable assets E) Produce a monthly report on inventory asset F) Update the list on asset inventory monthly G) Up date stock in and out in the system and card store after each movement	4,000,000	GoR
2) Handle fuel management	Period of reporting and updating	Existing TCT Assets register and report	Q1–Q4: After movement ( in/out) at 30th of each month	A) Prepare and submit to procurement fuel request B) Follow procurement until delivery of fuel C) Record fuel management in the register D) Sign in the register when withdraw fuel E) Reconcile log books and fuel report F) Up date fuel consumption books G) Produce fuel monthly report	4,000,000	GoR
<b>Output 4: Human resource management is functional</b>						
Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (Rwf)	Source of fund
1) Conduct recruitment	Number of recruited	Organizational	Q2:11 staff	A) Identification of posts to be recruited B) Prepare job advertisement	5,200,000	GoR

				C) Hiring a recruitment firm D) Prepare recruitment tests E) Prepare venue for recruitment tests F) Organize written tests G) Publication of results H) Organize Oral tests I) Compilation of recruitment report J) Submission of recruitment report to PSC K) Preparation of Appointment letters L) Prepare offices and other working facilities for successful candidates		
2) Conducting induction	New staff are socially integrated within TCT Community	HR Manual of Procedures which outlines guidelines for induction	Q2: All new recruited staff	A) Prepare accommodation for successful candidates B) Prepare a Power point presentation capturing general information on the College C) Organize a meeting with successful candidates D) Providing guidance to Heads of Departments on induction within the Departments E) Organize oath taking for new staff	0	
3) Process remuneration	Salaries are paid on time	Approved salary structure	Q1-Q4: By 10th of Each month payrolls are submitted to WDA	A) Updating payrolls each month B) Preparation of different payrolls C) Submission of payrolls by 10th and 20th of each D) Requesting Payment Orders from WDA and TCT Finance Unit	1,015,101,444	GoR
4) Processing remittance of statutory deduction	No penalties for delay are imposed to the College	Existing types of statutory deductions	Q1-Q4: Pension scheme: 4, Medical scheme : 12, SFAR: 12	A) Updating different remittance forms ( REB, RSSB both health and pension declarations) B) Computing declarations C) Filling of information to be declared D) Collecting of payment support documents (Payment Orders) E) Submission of declarations to relevant Institutions	0	
5) Improve Performance Management ( daily, weekly, monthly and annually)	Performance contracts	Action Plan	Q1-Q4: Monthly reporting of activities	A) Preparation of targets to be achieved B) Signing of performance contracts C) Design of daily and weekly performance monitoring form D) Monitoring of performance contracts E) Performance appraisal F) Compilation of performance appraisal report G) Submission of performance reports H) Preparation of performance gratification	25,000,000	GoR
6) Develop and submit capacity building needs	Training needs Assessment is carried out and training plan is submitted to PSCBS	Previous performance Appraisal, Training institutions and training needs assessment	Q3: Capacity building plan is submitted to PSCBS	A) Identification of skills gaps B) Identification of training needs C) Prepare a training plan D) Identification of training providers E) Requesting for training Fund ( PSCBS) F) Implementation of training plan	30,000,000	GoR

7) Use of a computer based system in leave management	A computerized leave management system is available	IT Skilled people and JICA Support	Q1: Providing information related to Leave Management Q2: Feeding the information in the system	A) Express the need to IT Department B) Provide required information to be feeded in the system	0	
8) Promote staff welfare	Staff houses are equipped with basic furniture, and staff are subscribed to swimming services	Staff houses and swimming services providers	Q: 2: Staff houses are equipped Q3: Staff are subscribed to swimming services	A) Purchase of basic furniture in staff houses B) Purchase of water dispenser C) Purchase of Gym equipments and swimming services D) Subscription for swimming services	110,000,000	GoR
9) Promote team building	Social events gathering staff for social	Existing Service providers	Q2: End of year togetherness Q4: Labor day	A) Organize frequent games competition among staff A) Organize different events ( End of year, Labor day, . General staff meeting, etc	8,000,000	GoR

**Output 5: Infrastructure facilities and equipment are upgraded to support academic quality and welfare of TCT community**

Activity	Indicator	Baseline	Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (Rwf)	Source of fund
1) Undertake periodic assessment of Infrastructure,	Damaged equipments are identified and	List of purchased equipments and	Q1–Q4: 70 % of damaged equipments are maintained	A) Organize frequent infrastructure and equipment inspection B) Identification of infrastructure to be maintained	0	
2) Prepare specification	Specifications of	List of needed	Q: 1: Preparation and submission of	A) Establish maintenance cost B) Prepare specification C) Submission of specification to the procurement	40,000,000	GoR
3) Maintain clean environment	Cleanness within the College is maintained	Buildings and gardens	Q1: Preparation of specification for cleaning services Q2: Submission of specification to the Procurement officer	A) Monitor cleaning compliance B) Prepare specification for cleaning and advertisement and hiring C) Submission of specification to the procurement D) Establishing of areas for painting E) Establish specification and quantities for paints F) Painting	52,000,000	GoR
4) Paving TCT Parking premises	TCT Parking premises is paved	Parking	Q1: Preparation of specification for paving works Q2: Submission of specification to the Procurement	A) Prepare specification for studies and construction B) Establishing quantities C) Submission of specification to the procurement office		
5) Expropriation of land	Expropriated Land	Land to be expropriated	Q: 2: Establishing the size of land to be expropriated Q2: Meeting with land owners Q3: Finalization of expropriation	A) Inviting land owners for negotiation, B) Contacting district authorities C) Preparation of contracts for expropriation, D) Process payment for expropriation		

[illegible]



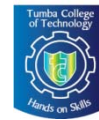
4) Organized Culture Troop	4 different types of Cultural Dance (Amaraba and intore, Orchester, Drama and Music dance)	Cultural Dance & music Instruments available	Q1: Students Cultural troop competitions and awards done	A) Organize talented students and set-up criteria ( Early Sept 2013) B) Cultural Troop competitions End Dec C) Final awards (End Jan 2014)	2,000,000	GoR
5) Students clubs and Associations are strengthened	4 Clubs (Gender, Environment protection, Anti-SIDA, and 5 religious groups (GBU, Catholic community, ADSTA, SEP and Islam) 2 Associations (AERG & TCTSU) functioning	Existing clubs and associations	Q1: Clubs and Association strengthened	A) Facilitation of students elections B) Facilitation of students Swearing-in ceremony C) Public lecture for the new elected students and provide advice and Guidance ( Early Sept 2013) D) Support and facilitate various clubs competitions (Mid sept 2013) E) To make follow up for Union leaders requests and support either school procedures. F) To provide to them the necessary and available materials for their offices use and to early Sept, 2013. E) Hiring Musician During Commemoration period Early March 2014 .	4,000,000	GoR
6) Students Healthy maintained	1. Equiped clinic with basic drugs	Available clinic with some drugs & full time nurse	Q1: 80% of frequently needed Drugs .	A) Specification on Drugs and other Facilities are done (July–August 2013) B) Follow up of procurement process C) Public lecture on Sexual Transmitted diseases and VTC (Voluntary counseling and Testing ) Early Sept 2013	5,000,000	GoR
7) Periodic Monitoring and Evaluation of Cleanness in Hostels	1. Availability of Hygienic Equipments (Toilet papers , Buckets, Mopping towel & Brushes , Floorsquegee, Curtains 2. Periodic monitoring reports	Cleaning competition per semester and reports	Q1: All accommodated students  Q2: Semi-annual awards on cleaning competition Q4: Semi-annual awards on cleaning competition	A) Specification of cleaning materials (End July 2013) B) Follow-up procurement process (Early Aug 2012) C) Cleaning materials procured A) Cleaning competition award A) Cleaning competition award	6,000,000	GoR

**Output 7: Security with the College is reinforced**

Activity	Indicator		Target	Tasks to deliver output – please indicate date the activities will be complete	Budget available (Rwf)	Source of fund
1) Monitor both people and equipment movements	Security of people and property is ensured within the College	Security Company	Q1–Q4: Monthly security report  Q2: Training of security personnel on	A) Prepare visitors registration book B) Prepare visitors cards C) Prepare a gate pass form A) Purchase of fire extinguishers and maintenance of	15,502,000	GoR
2) Ensure protection of all assets and equipments of TCT	TCT Assets are insured	List of non fixed assets, RHA policy on insurance of government property	Q1: Inventory of non fixed assets Q2: Preparation of specification, Submission of specification for Procurement Q3: Submission of request for insurance to RHA	A) Inventory of non fixed Assets A) Prepare specification for insurance B) Submission of specification to the procurement office A) Hiring a firm for insurance B) Requesting RHA for Insurance of Fixed Assets	135,000,000	

2,882,785,985

Annex 13:  
TCT Annual Event Calendar



# TCT Annual Event Calendar 2013-14

## 1st Semester

### July

#### ACADEMIC EVENTS

7-11<sup>th</sup> Final year project defense week  
14<sup>th</sup> Industrial Attachment begins

#### CULTURAL/SOCIAL EVENTS

#### OTHERS

1<sup>st</sup> Independence Day  
4<sup>th</sup> Liberation Day

### August

#### ACADEMIC EVENTS

22<sup>nd</sup> Industrial Attachment ends

#### CULTURAL/SOCIAL EVENTS

#### OTHERS

15<sup>th</sup> Assumption

### September

#### ACADEMIC EVENTS

2-6<sup>th</sup> Induction week  
9<sup>th</sup> Semester 1 Lectures begins  
30<sup>th</sup> Beginning of CAT 1

#### CULTURAL/SOCIAL EVENTS

#### OTHERS

### October

#### ACADEMIC EVENTS

28<sup>th</sup> Beginning of CAT 2

#### CULTURAL/SOCIAL EVENTS

30<sup>th</sup> Japan Culture Day

#### OTHERS

### November

#### ACADEMIC EVENTS

29<sup>th</sup> Semester 1 Lectures end  
29<sup>th</sup>-3<sup>rd</sup> TVET Expo in KIGALI  
TCT Robot Competition

#### CULTURAL/SOCIAL EVENTS

1<sup>st</sup> Beginning of interclass competition (Foot ball)  
Awards to interclass

#### OTHERS

27<sup>th</sup> PU Launching Ceremony

### December

#### ACADEMIC EVENTS

2-6<sup>th</sup> Revision week  
9<sup>th</sup> Semester 1 Exams begin  
20<sup>th</sup> Semester 1 Exams end  
23-27<sup>th</sup> Exams marking week  
TAG Meeting(AE,ET & IT)

#### CULTURAL/SOCIAL EVENTS

4<sup>th</sup> Senior Mgt Meet Students  
General Staff Meeting

#### OTHERS

25<sup>th</sup> X-Mas Holiday  
26<sup>th</sup> Boxing Day

## 2nd Semester

### January

#### ACADEMIC EVENTS

10<sup>th</sup> Announcement of exam results  
13<sup>th</sup> Semester 2 Lecture begin  
17<sup>th</sup> End of Semester 1 appeal

#### CULTURAL/SOCIAL EVENTS

Karate Competition @ TCT  
Rugby Competition @ TCT

#### OTHERS

1<sup>st</sup> New Year  
23<sup>rd</sup> Career Day @TCT

### February

#### ACADEMIC EVENTS

3<sup>rd</sup> Beginning of CAT 1  
22<sup>nd</sup> Community work for Staff & Students  
Study Visits(AE,ET& IT)

#### CULTURAL/SOCIAL EVENTS

#### OTHERS

1<sup>st</sup> Heroes Day

### March

#### ACADEMIC EVENTS

3<sup>rd</sup> Beginning of CAT 2  
Graduation Ceremony  
National Robot Contest

#### CULTURAL/SOCIAL EVENTS

7<sup>th</sup> Final match of interclass competition (Foot Ball)  
30<sup>th</sup> Friendly match Tumba Vs INILAK (@ TCT) Foot ball

#### OTHERS

21<sup>st</sup> VCT/HIV test to all Volunteer Students

### April

#### ACADEMIC EVENTS

4<sup>th</sup> Semester 2 Lectures end  
14-18<sup>th</sup> Revision week  
21<sup>st</sup> Semester 2 Exams begin

#### CULTURAL/SOCIAL EVENTS

#### OTHERS

7-13<sup>th</sup> Genocide Memorial Week

### May

#### ACADEMIC EVENTS

2<sup>nd</sup> Semester 2 Exams end  
5-9<sup>th</sup> Exam marking week  
20<sup>th</sup> Announcement of exam results  
26<sup>th</sup> Supplementary exams begin

#### CULTURAL/SOCIAL EVENTS

1<sup>st</sup> Match: Academic Staff Vs Admin.Staff(Foot ball)  
9<sup>th</sup> Swearing of TCTSU Leaders

#### OTHERS

1<sup>st</sup> Labor Day  
Imbuto foundation Training  
Students' Training on computer Maintenance

### June

#### ACADEMIC EVENTS

6<sup>th</sup> Supplementary exams end  
20<sup>th</sup> Publication of Final results  
27<sup>th</sup> End of final results appeal

#### CULTURAL/SOCIAL EVENTS

#### OTHERS

Annex 14:  
Implementation Procedures of  
TCT Tracer Survey 2013

## IMPLEMENTATION PROCEDURES OF TCT TRACER SURVEY 2013

### I. 2013 tracer survey activities' schedule

The schedule of 2013 tracer survey as per the action plan was as follows and it was followed accordingly:

Activity	Month of the year				
	July	August	September	October	November
Preparation of graduates' list and their telephone numbers					
Hiring of the enumerators					
Training of the enumerators					
Tracer survey data collection					
Tracer survey data analysis and reporting					
Sharing the report internally within TCT					

### II. The total Cost of the survey

Activity	Cost (in RWf)	Cost details	sub total
Hired enumerators for data collection and entry	1,080,000	Four enumerators were used in this survey and only three were hired and paid 18,000 per day for 20 days. One enumerator was TCT staff	1,080,000
Airtime for calling graduates	361,000	This was the total airtime used in survey and the number of graduates called was 563	361,000
Handsets with SIM cards to be used in calling	42,000	Four handsets with SIM cards were bought at 10,500 each	42,000
Stationary	12,000	Three reams of papers for printing questionnaires, pencils and rubbers	12,000
<b>Total cost</b>			<b>1,495,000</b>

### III. Preparation Stage

The preparation of 2013 tracer survey included the following activities:

- Preparation of graduates' lists with their telephone numbers
- Review of tracer survey questionnaire
- Review of data input to excel sheet
- Request for needed budget
- Preparation of enumerators' working stations with necessary materials
- Hiring of enumerators

### IV. Implementation stage

The 2013 tracer survey implementation involved the following activities:

- Training of enumerators
- Calling graduates and filling gathered data on tracer survey questionnaires
- Entering gathered data in data input excel sheets (where the analysis is made)
- Pre-data analysis which involves correcting the mistakes made during data entry
- Data analysis
- Generation of the tracer survey report

### V. Post survey stage

Even though the report has not been officially shared, we expect to have the following in the post survey stage:

- ◆ **Sharing the report:** The report is shared with the management staff and we expect the concerned heads of units/departments to disseminate the information concerning their units/departments to their colleagues. Different units/departments should identify what they need to do so as to come up with improvements in relation to recommendations and suggestions that have been given by the graduates. Next tracer survey report should capture which/how actions pertinent to the aforementioned recommendations and suggestions were taken.

- ◆ **Reflection of the tracer survey results in TCT activities:** Reflection of the Tracer survey results should be given more value. Areas for which quick actions are to be taken have to be identified and concerned people should be instructed to take them with their full commitment and set deadlines for each.
- ◆ **Counter Measures:** There should be mechanisms of monitoring whether the actions that have been identified are being made by concerned people and within the time limits set.

## VI. Proposed improvements in next tracer surveys

- The tracer survey questionnaire should always be reviewed before any tracer survey activity, to see whether there are some new questions to be inserted, existing questions to be removed or to be amended.
- The representative sample of graduates should be called in next tracer surveys and it should be better if the majority of this sample are graduates of the latest batches because the first batches' graduates (1<sup>st</sup> and 2<sup>nd</sup>) seem to have become stable and the information they give is becoming constant over the years.
- After calling exercise, the enumerators should take some time to revise the data they have entered in data input excel sheet together with the people who will analyze the data for harmonization purposes.
- Every tracer survey report should show what actions have been taken towards the recommendations of the tracer survey previous to it.

Annex 15:  
TCT Academic Staff  
Workload Calculation Guideline





## **TCT ACADEMIC STAFF WORKLOAD CALCULATION GUIDELINE**

**OFFICE OF THE VICE PRINCIPAL IN CHARGE OF  
ACADEMIC AND TRAINING**

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### 1. Preamble

The following guideline establishes the basic principles for fair, equitable and balanced distribution of work amongst academic staff. Its core objective is to ensure that, within the Department, the work undertaken is seen to be reasonably and evenly distributed. It is intended that this guideline will provide Heads of Department with a framework within which models for workload planning will be developed and operated. Although there is a clear expectation that all academic staff will make a full contribution to the goals of the College and their respective Departments, this guideline does not seek to alter the relative flexibility of working time of academic staff but instead, to consider this flexibility in relation to maintaining an appropriate work-life balance.

In contributing to the achievement of the mission and vision of the College, the academic staff is supposed to:

- Ensure effective teaching and learning of high quality
- Make scholarly contributions - research or creative work
- Ensure consultancy, knowledge transfer and public service
- Play their part in the academic administration of the College and its programmes.

While working for the above, the academic staff will be accomplishing their assigned responsibilities which fall under three main responsibilities namely education, research and community services.

In this guideline, academic staff workload refers to all academic activities that are related to professional duties and responsibilities. They include but are not confined to:

- Preparation for lecture delivery
- Lectures & tutorials delivery
- Assessments [coursework, final exams, deliberations of exams]
- Laboratory/excursions/practicals
- Distance Education and face-to-face sessions;
- School practice/internship/supervision of placements
- Module writing/Programmes development/short courses
- Students' final year research project supervision
- Research
- Service Activities (Professional consultancy, delivery of workshops/seminars and conferences, participation on various college standing and ad hoc committees etc)
- Leadership/administrative responsibilities/academic administration.

The academic staff workload encompasses the total time allocated to all of the above responsibilities, depending on the ones that a given staff undertakes. In addition, time must be allowed for personal and professional maintenance – answering emails and correspondence, talking to colleagues, filing, talking to students, professional reading and web use beyond what is needed for the revision of lectures, staff development, etc. In contrary, the academic staff teaching load only includes the time reserved for teaching as it is included in a broad workload.

## **2. Working Time**

It is currently the case that hours of work are not specified within the employment contract for academic staff. However, academic staff are expected to manage their own time to achieve the objectives of their position, based on a normal expectation of a 45 hours week. Before calculating the workload, it is very important to first calculate the total number of hours in a working year. A working year is equated to a maximum of 43 weeks, that is 52 weeks-(2weeks of public holidays+5weeks of annual leave+1week of Easter holiday +1week of Genocide memorial). A working week refers to a maximum period of 45 hours (9hrs times 5 working days of a week). This period of 45 hours in a week is the one taken up by the activities or responsibilities that constitute the workload of an academic staff. Since there are 45 working hours in a week, the working hours in a year are equal to 43 weeks x 45 hours=1935 hours. The activities allocated to these 1935 hours include some that occur during 30 teaching weeks (2 semesters x 15 weeks of each semester) and others that occur along 13 remaining working weeks irrespective of whether students are present.

It is crucial to note that while calculating the workload for the academic staff, what is at question is the number of hours someone teaches over the year as teaching is the overall responsibility of the academic staff.

## **3. Principles of workload management**

The College expects Heads of Departments to endeavour to apply the following principles when managing workload:

- (i) Reasonable workloads will be fairly distributed between individual academic staff in an open and consultative way.
- (ii) Employer-driven work will be contained within socially acceptable working hours, taking into account individual needs and circumstances.
- (iii) Staff will be allowed the opportunity for reasonable, annual breaks from work.
- (iv) Time should be made available during reasonable working hours for the full range of academic activities (i.e. teaching, preparation, research and service) as well as professional development as appropriate.
- (v) Staff will have access to reasonable development time for training appropriate to their role. Training and development needs will normally be identified through the Performance Development Review system (PDRs).

- (vi) Should any member of staff wish to challenge and dispute the distribution or volume of work as unfair or unreasonable, this should be discussed informally with their Head of Department as soon as possible. This may also be a matter for discussion at their PDRs meeting that must be chaired within the department.

If not resolved, the Head of department together with the Dean of academic programs will address the issue in consultation with the concerned staff.

#### **4. Responsibilities of the Head of Department**

- Heads of Department will ensure that each academic staff member has a balanced and reasonable workload in terms of activities and overall contribution relative to all academic staff in the Department.
- The expectation is that each Department will use the agreed and open procedure set out in this document in order to consider the overall distribution of work, which can be reasonably managed within the available resources.
- It is the responsibility of the Head of Department to collect and monitor data relating to workloads. Distribution of the workloads should be made public within the Department and reviewed annually.
- All areas of relevant activities (e.g. teaching, research, community service and others) should be included in individual workload whether performed within the Department itself, or at a College level.

#### **5. Application of this guideline**

This workload guideline applies, in its entirety, to all full-time and probationary academic staff of Tumba College of Technology. On the other hand, part-time academic staff are employed for only limited duties, such as teaching specific modules/ courses or supervision of students doing research projects, and thus are under obligation to perform responsibilities only in those areas that are explicitly identified in their contracts.

All academic staff members are expected to pursue professional duties and responsibilities in each of the three primary domains of intellectual activity: imparting knowledge (teaching, managing students' learning activities), creating new knowledge (research, scholarship and creative activities) and transferring knowledge and skills to the community (service and consultancy).

## **6. Academic Activities**

Teaching, Research and Service are all valued activities. The Head of Department will endeavour to ensure an equitable distribution across the range of these valued academic activities.

- Teaching responsibilities require academic staff to achieve a satisfactory standard of instructional competence, to contribute to their Departments curriculum diversity and richness, to foster students' critical and creative abilities and to share equitably the annual instructional responsibilities of their Departments.
- Research responsibilities require academic staff to maintain a programme of research, creativity through which they should aspire to a national and international reputation as scholars. Academic staff will publish and aspire to disseminate research in high-quality, locally and internationally prominent journals and books.
- Service refers to the annual contributions that academic staff makes to College governance, its various committees, its various leadership roles including course leadership, their profession, and to the furthering of positive relations between the College and its various communities.

## **7. Review of the workload plan**

- Each department will monitor the operation of workload planning models annually.
- The development of individual workload allocations may be aligned to the annual Performance Review Process.
- Data emerging from this review will be shared with other relevant organs in the College and retained within the office of the Vice Principal Academics for a period consistent with the College's record retention guideline.
- This guideline will be reviewed at least every two years unless some necessities apply.

## **8. Components of academic staff workload**

The core components that are of paramount importance as far as calculation of academic staff workload is concerned are:

- (a) Teaching: This refers to the time that the staff has to spend delivering lectures or conducting practical classes.
- (b) Preparation for teaching: This refers to the time that the staff has to spend while preparing the teaching to deliver to students. This time enables the staff to keep lectures up to date, improve seminars and so on.

- (c) Assessments: This refers to the time used by the academic staff while preparing, invigilating and marking the assessments both formative assessments and summative assessments.
- (d) Student contact – personal tutoring: This is also known as office hours and it is concerned with time that permits reasonable access of the staff by students for one or another assistance they need to get from them.
- (e) Project supervision: This refers to the time that the academic staff who are supervising some final year projects spend while providing scaffolding to the supervised students for the betterment of their research projects.
- (f) Personal administration: This is about the time taken up by the academic staff on answering emails, filing, answering letters, filling in forms and so on.
- (g) Networking: this refers to the time spent by an academic staff for discussions with colleagues, departmental and other meetings.
- (h) General readings: this refers to the time used by the academic staff for some general readings beyond the scope of particular courses.

## 9. Workload Calculation

Considering the above main components that are crucial while calculating the academic staff workload, let us have a look at their time allowance below.

- a) Teaching: The baseline is 18 hours of teaching per week for 24 weeks → **430 hours**
- b) Preparation for teaching: The baseline is one hour for every one hour of face-to-face teaching → **430 hours**
- c) Preparing, invigilating and marking assessments: Allowance of 6 weeks per year as an arbitrary figure (a week in each semester for continuous assessments and two weeks in each semester for everything concerned with examinations) → **270 hours**
- d) Student contact: 5 hours per week for 30 weeks ( Teaching weeks and examinations weeks) → **150 hours**
- e) Personal administration: 1 hour per day for 43 weeks → **215 hours**
- f) Networking: 3 hours per week for 43 weeks → **129 hours**
- g) General reading: 7 hours per week for 43 weeks → **301 hours**

The total work time in a year by adding all the above components is approximately equal to **1925 hours**

Apart from the above, some time allowances are also given for some things like personal research and administrative duties whose related time can be quantified. These include for instance being a member of the college standing committee which meets regularly.

There are other duties whose time allowance is very difficult to quantify, in such a case the allowances will have to be negotiated between the person concerned and the Head of Department.

Time allowance made for research and administrative duties is normally tied to measurable outputs and in a fairness manner. Allowances are made for proposals to be produced, articles and books to be written, fieldwork to be carried out but these allowances are likely to be taken back in the next year if there is no visible output from them. Claims to undertake certain kinds of activities by those who have had such time in the past and not succeeded with them may be looked upon with a degree of scrutiny by the Head of department in consultation with the Dean of academic programs and the Vice Principal Academics. If such claims don't get the fruitful solution at this level, they can be forwarded to the College Senate.

The Vice Principal-Academic is responsible for ensuring that workloads are well allocated to academic staff and implemented in an effective manner. He/she exercises oversight to ensure that the collective, approved workload distribution within the institution results in a fair distribution of effort among academic staff members and that it promotes the efficient and timely completion of programmes of study by students and facilitates compliance with quality assurance and enhancement benchmarks.

The calculation of teaching load considers some predetermined allowances as pointed out below:

#### **10. Allowances**

There is a set of series of predetermined allowances to be taken into consideration while calculating the teaching load as they may be applicable to Tumba College of Technology.

- National/International publications research in progress: half a day a week for 43 weeks → **170 hours**. (Evidence of the project would be required, and a time for finishing it would be set).
- Internal publications research in progress: Half a day a week for one semester →  $4 \times 15 = 60$  **hours** (Evidence of the project would be required, and a time for finishing it would be set)



- Planning research: putting together research proposals, grant applications etc. Where someone can argue they are doing this, there is allowance of half a day a week for one semester  $\rightarrow 4 \times 15 = \mathbf{60 \text{ hours}}$ . It would never be allowed again if the proposal did not eventuate and the concerned staff will be required to end up with it without necessarily having the time allowance for it except if some tangible reasons are given.
- Membership of a College standing Committee that meets regularly (College management committee or College Senate) -assuming one meeting a month plus reading the papers -10 months  $\times 4 \text{ hours} = \mathbf{40 \text{ hours}}$ .
- Supervising an advanced diploma project: half an hour a week for 26 weeks, plus six hours for reading drafts plus four hours for examination and defence, plus two hours of any other activity (e.g. updating oneself in the area):  $\rightarrow 13\text{hrs} + 6\text{hrs} + 4\text{hrs} + 2\text{hrs} = \mathbf{25 \text{ hours}}$ .
- Writing distance learning/self-study material – allowance of **two** hours for every hour that the student is expected to spend on the material.
- Other items that might be negotiated individually: attendance at national/overseas meetings, membership of research networks; chairing networks; work on own masters or PhD where this is seen as undertaken at least in part in the interests of the College; staff development etc.

**Note:** Time allowance is not offered for those who receive additional allowances in money like Deans of faculties, Heads of Departments, class mentors and supervision of students' projects. Where the work undertaken is clearly out of scale with the monetary allowance, negotiation would be appropriate.

Basically, these allowances can only come off teaching, preparation and assessments time. This is made up of (430hrs for teaching + 430 hrs for preparations + 270 hrs for assessments=1130hrs). So, each subtracted hour should reduce the teaching load by 0.4 hours as it also liberates 0.6 hours of preparation and assessments).

### **11. Teaching load calculation**

As mentioned earlier, there are roughly 1930 hours to be covered in a whole academic year. The basis of calculation is 9 hours per day for 43 weeks, and this leaves no 'slack' whatsoever since there is an absolute consideration of every kind of activity that an academic staff is reasonably expected to undertake.

The applied principle will not lead to a single and common workload allocation but to a basis for individual negotiation since individuals may get so quite different allowances that can lead to the teaching load reduction, thus different workloads for

different individuals. It is assumed that each person fills in a form or has a form filled in on his or her behalf which lists the next academic year's workload as it is now foreseen. In some cases, this will be moderately simple and automatic but in other cases the actual amount of workload will be subject to negotiation, depending on various reasons.

How the teaching hours are made up would be a matter for negotiation. A lecture is one hour, but a number of seminars/workshops etc varies with the nature and the size of the module/ course. The 430 hours allocated for teaching act as the maximum that any academic staff could be expected to teach, and anyone with a load higher than this needs to have some work re-allocated or the assistance of instructors/ technicians/demonstrators. Supervising instructors or technicians in taking seminars/ lab practicals / workshops does not attract any time allowed for preparation. Hereunder, let us have some examples of teaching load calculation as the cases may be found among TCT academic staff.

## 12. Examples of teaching load calculation

**Note:** No any academic staff has a teaching load equal to 18 hours per week as it is the maximum time since each and every academic staff is supposed to at least produce an internal publication in terms of academic paper every semester

- A. An academic staff writing an academic paper, supervising 2 advanced diploma research projects, who has negotiated five days to present a paper at a conference that will take up five days (45 hours) to attend but not receiving allowance for actually writing the conference paper as well as doing the research:  
Total allowances: 120 (writing an academic paper) + 50 (2 research projects supervision)+45 hours (presentation of a paper)=215 hours.  
Reduction of teaching load: $0.4 \times 215 = 86$  hours.  
Teaching load: 430 hours-86 hours= 344 hours.  
Maximum teaching hours per week= $344:24=14$  hours/week
- B. An academic staff writing an academic paper, HOD, member of Senate and another committee, supervising 4 projects.  
Total allowances: 120(academic paper writing) +0 (HOD for which monetary allowance is given) +40 (senate member) +40 (another committee, meeting on a monthly basis) +100(4projects supervision, 25 hrs annually per every project) = 300 hours  
Reduction of teaching load:  $0.4 \times 300 = 120$  hours  
Teaching load: (teaching hours) 430 -120=310hrs (teaching hours)  
Maximum teaching hours per week=  $310:24=13$  hrs/week

- C. An academic staff writing an academic paper, Class mentor, member of a certain committee, supervising 4 projects.

Total allowances=120 ( If two academic papers are written per year)  
+0(class mentor for which monetary allowance is given) +40(member of a committee) +100 (4projects supervision) =260hours

Reduction of teaching load=  $0.4 \times 260 = 104$ hours

Teaching load=430hours-104hours=326hours (teaching hours)

Maximum teaching hours per week=326:24=**14hours/week**

- D. An academic staff writing an academic paper, Director of a certain unit, member of Senate and another committee, supervising 3 projects

Total allowances=120(academic paper writing) +0(director of a unit) +40 (member of Senate) +40 (member of another committee) +75 (3 projects supervision) =275hours

Reduction of teaching load= $0.4 \times 275 = 110$ hours

Teaching load=430hours-110hours=320hours (teaching hours)

Maximum teaching hours per week= 320:24=**13hrs/week**

- E. An academic staff writing an academic paper per year, given money allowance for supervising 4 projects

Total allowances=60 (academic paper writing) +0 (4 projects supervision with monetary allowance) = 60 hours

Reduction of teaching load= $0.4 \times 60 = 24$  hours

Teaching load=430-24=406 hours (teaching hours)

Maximum teaching hours per week= 406:24=**17 hours/week**

Annex 16:

List of Production Unit Activity Ideas

for the 2<sup>nd</sup> Year

### RDPU Activity Ideas for 2nd Year

	Short Term Training	Production through Practical Lessons	Joint Venture	Product Development/R&D	Other Projects
<b>Aim</b>	<ul style="list-style-type: none"> <li>– To strengthen provision of short-term training courses based on TCT skills &amp; technologies</li> <li>– To increase a source of “stable” income to build the base for TCT</li> </ul>	<ul style="list-style-type: none"> <li>– To manufacture TCT products through practical lessons</li> <li>– To improve the quality of practical lessons by utilizing students in the process of manufacturing TCT products and sell them to generate income</li> </ul>	<ul style="list-style-type: none"> <li>– To conduct business activities through joint venture with external partners, and provide technical inputs</li> <li>– To support incubation of TCT graduates through joint ventures</li> <li>– To strengthen TCT's R&amp;D capacity through joint ventures with strong Rwandan industries</li> </ul>	<ul style="list-style-type: none"> <li>– To develop TCT products based on research</li> <li>– Successful products are brought into a next step to consider commercialization through practical lessons or joint ventures with private companies including TCT graduates</li> </ul>	<ul style="list-style-type: none"> <li>– Continuous activities from the first year</li> <li>– Other necessary activities to support RDPU activities</li> </ul>
<b>RDPU Tasks</b>	<ul style="list-style-type: none"> <li>– Overall coordination to revise/renew the short-term training services</li> <li>– Gather necessary information and analyse the needs for short-term trainings</li> <li>– Develop a training implementation strategies (how to conduct trainings, using TCT staff)</li> <li>– Look for facilities to conduct short-term trainings</li> <li>– Conduct marketing</li> </ul>	<ul style="list-style-type: none"> <li>– Coordinate to revise the current curriculum to incorporate production activities in the existing practical lessons</li> <li>– Coordinate to organize necessary materials and facilities</li> <li>– Market TCT products and establish a distribution channel</li> </ul>	<ul style="list-style-type: none"> <li>– Collect information on potential partners and seek possibilities for joint ventures</li> <li>– General coordination and management of joint ventures, including MOU making</li> </ul>	<ul style="list-style-type: none"> <li>– To coordinate general R&amp;D planning and implementation of projects</li> <li>– Provide necessary funds to support R&amp;D activities</li> </ul>	<ul style="list-style-type: none"> <li>– Overall coordination and progress monitoring</li> </ul>
<b>IT</b>	CCNA MCITP RHCE OCA PC Maintenance CCNP Small web based application development  •Revise Kigali ICT center training curriculum •Install testing facility at Kigali TCT ICT	•Mobile/PC application development (final year project)	•Network installation & maintenance business with TCT incubatees •Lending server to TCT incubatees •Leave Management System Sales with TCT incubatees •Network & Software development Consultancy	Application developed (software) research findings	•Leave Management System Sales •IT Driving Test system development
<b>ET</b>	•Repair and maintenance of electronic items •PC Refurbishment •Workshop in secondary school in northern province(6/year) i.e 2/term •Automation system •Fiber optics technology •Teaching selected secondary school to use electronic equipments		•GPS project •NYIRANGARAMA electronic machine maintenance	•Power supplies •Measuring instruments(both analog and digital, ohmmeter, multimeter) •Teaching kits	•Sorwathe sensor application •NYIRANGARAMA juice bottle sensor filling application •Conduct needs survey to community neighboring TCT and TVET/VTC in northern province
<b>AE</b>	•Briquette making training •BHB and CANARUMWE Cook stoves making training •Biogas Installation •Electrical domestic installation •Basic of mechanical workshop training •Masonry construction short training	•Solar Water Heater at staff houses •Briquette •Improved cook stoves •Biogas installation	•Manumetal – SWH development (R&D, production) •TCT Graduates – Biogas installation •EWSA, RCS, SNV, REMA – Biogas installation	•Insect Trap •Solar Water Heater further development	•Biogas installation within TCT •Solar PV installation •FONERWA proposal development (R&D)