OPERATIONS

CENTRAL TECHNICAL SERVICES ANNUAL REPORT - 2010

EXECUTIVE SUMMARY

1. CENTRAL TECHNICAL SERVICES CORE BUSINESS AND STRATEGIC PLAN / THRUSTS

1.1 Description of Core Business in Central Technical Services

1.1.1 Vision of CTS

A versatile, reliable and dependable division engaged in the development, maintenance and management of UJ infrastructure in support of the actions of the UJ Planning and Resource Committee and the greater UJ environment.

1.1.2 Mission of CTS

- To provide a centralized support action for multi-campus maintenance planning and projects
- To provide a multi-campus utilities metering and monitoring function
- To update and maintain Space data for Hemis reporting and drawing information for maintenance and development projects.
- To provide a multi-campus project management support function.
- To ensure that adequate levels of availability, reliability, operability and safety of spaces and equipment are provided at acceptable levels of cost.
- To assist in identification, development and implementation of key infrastructure projects in support of UJ strategic thrusts.

1.1.3 Central Technical Services comprises the following sections:

- Maintenance Management section
- Utilities Management section
- Space Management section
- Planning and Project Management section

1.2 Strategic plan / thrusts in CTS in support of main UJ Thrusts 1 - 8

CTS activity will by its nature mean an involvement at different levels with each of the UJ Strategic Thrusts:

- **Thrust 1 has a CTS involvement level of approximately 20%.** This is primarily in support of the background physical infrastructure environment conducive to sustained excellence for:
  - Academic programmes and the supporting teaching facilities.
  - Research activity and the supporting facilities and equipment.
  - Teaching and learning, research and strategic engagement with communities.

- **Thrust 2** has limited CTS involvement except that the maintenance of a quality environment affects the reputation of the University as a comprehensive institution.

- **Thrust 3 has a CTS involvement level of approximately 20%.** Although each campus requires a unique programme profile, each campus must however be equivalent in terms of resources and services provided to staff and students. CTS provides technical support in the fulfillment of this objective.

- **Thrust 4** has limited CTS involvement except that it supports UJ infrastructure and systems, the quality of which influences the reputation of UJ with international students and scholars.

- **Thrust 5** has limited CTS involvement except that the quality of the UJ environment will influence the quality of the branded image in the public perception.

- **Thrust 6 has a CTS involvement level of approximately 10%.** CTS is required to provide the necessary Leadership to identify projects having an impact on the wider UJ environment. These projects are to improve the inherent quality of the UJ infrastructure in support of all the UJ strategic thrusts.

- **Thrust 7** has limited CTS involvement except that the quality of the UJ environment will influence the quality of the support that UJ Alumni give to UJ. (As evidenced by the need to move Alumni offices back to APK !).

- **Thrust 8 has a CTS involvement level of approximately 50%.** This is the primary area of support activity by CTS for the UJ strategic thrusts. As such the mandate of generating, cultivating and sustaining resources and structures encompasses the achievement of all the other strategic thrusts. This is through enabling the fitness for purpose of UJ to do so. It also includes the facilitation of a responsible and responsive UJ citizenship.

Activities as listed through the report in some cases highlight which primary thrusts they support.

1.2.1 CTS main thrusts overview:

- In 2010 CTS was engaged with assessing and selecting a computer aided facility management system. (CAFM system) This is to provide an integrated and effective work environment for maintenance, space, call centre and project management activities.
- The UJ Emergency Power Project is in process and extra funding has been approved to finalize the implementation of the current implementation and commissioning of the emergency power systems.
- CTS began engaging with HR regarding staffing and the filling of vacant posts.
- Assistance with late Applications and Registration Planning. This included Space and planning and projects
- Specific thrusts per section are identified as per below.

1.2.1.1 Maintenance Management thrusts:

- Upgrade of fume cabinets at APK and DFC campus. The initial R6 million allocation was given an additional R13 million boost to ensure that the project is successfully completed with fit for purpose equipment in line with Thrust 1.
- CTS engaged SSI to assist with aligning all maintenance related contracts that UJ has with external service providers.

	ELECTRICAL	CARPENTRY/ BUILDING/CIVIL	PLUMBING	PAINTING	WELDING	MECHANICAL	TOTAL
COMPLETED TACTICAL	2429	2845	1531	197	235	7516	14753
COMPLETED NON TACTICAL	825	0	851	0	0	801	2477
IN PROGRESS	2	48	36	0	7	155	294
AWAITING PLANNING	1	0	1	0	3	1	6
TOTAL JOBCARDS CANCELLED	89	127	56	7	12	2627	2918
OUTSTANDING 0-3 WKS	1	24	28	0	2	13	68
OUTSTANDING 3-6+ WKS	2	24	8	0	8	15	57
							20573

Fig. 1 Pragma On-Key Maintenance Progress Report for 2010.

1.2.1.2 Utilities Management thrusts

- CTS is assessing and reviewing ways to reduce costs of external utilities and services in line with Thrust 6 and 8.
- Utilities data was identified as a problem area in light of future penalties for not meeting future national usage reduction targets. This is a role and responsibility for CTS to provide this kind of oversight in terms of Thrust 6.
- Planning was implemented to address utilities data gathering processes.
- Utilities data began to be assembled and compared to previous data and accounts received
- Negotiations were held with all utility service providers such as City Power, Eskom and Johannesburg Water.

- Planning was put in place to initiate utility monitoring and metering infrastructure and equipment upgrades.

- The 4 main meters for each campus that were identified as problem accounts and that account for 80% of UJ electricity usage are as follows:

- APK Account Number = 220078838 on stand number 361
- DFC Account Number = 221092747 on stand number 479
- APB Account Number – New meter installed on Annet Street.
- SWC Account Number = 221086207

1.2.1.3 Space Management thrusts:

#.	Space Management Activity / Goals	Space Data integrates with:	Description	Plan of Action	Status – Key Performance Indicators
1.	Space HEMIS Report Submission to the DoHET:	-Maintenance -Utilities -Projects	2009 Data submitted in 2010	Due end May 2010	**Completed and submitted on time for 2010.**
2.	Survey of Office space to provide PCS codes to ITS		Program Classification System codes are required as part of Space HEMIS reporting	CTS and HRIS to request information from space users	**Intended start October 2010 but delayed to first align space database into one single database**
3.	Updating new Space Data to ITS	-Maintenance -Utilities -Projects	Update all new space data into ITS system for the 2010 report to be submitted in 2011: - Soweto Campus new work - Soweto Residences - APK – New residence - Plantation Road Houses	Updating space data to ITS as it is identified and processed for use.	**- Primary data completed for Timetables**
4.	Align Test and Production Data Base on ITS	-Maintenance -Utilities -Projects	Alignment of Test and Production databases to provide a single effective space database.	Combined action between all space stakeholders	**Completed end 2010.**
5.	Acquire a Computer Aided Facility Management System	-Maintenance -Utilities -Projects	A CAFM system is required to provide a Space Management system that also supports Utilities, Maintenance and Call Centre activity.	External Consultants contracted to assist with RFP to potential suppliers	**In Progress -Objective is to have a selected supplier begin 2011 and implement over a 2011 to 2015 timeline.**

6.	Plans and Projects	-Maintenance -Utilities -Projects	Drawing of plans & providing information for project planning, costing and construction. – This constitutes a large portion of Space Management activity.	As per request	**2010 requests 95% completed**
7.	FEBE Upgrade	-Maintenance -Utilities -Projects	Refurbishing and upgrading of existing FEBE facilities. Also to meet ECSA accreditation requirements.	Consultants appointed	**In progress and on track**
8.	Site Development Plans - SDP	-Maintenance -Utilities -Projects	Development of updated SDP's for planning purposes- APB and DFC	Consultant appointed And engaged in developing SDP's	**Approximately 60% complete during 2010**
10.	Space Requests	-Projects	Faculties and Departments due to expansion and adjustments on different campuses require extra space	Ongoing consultation to address shortage of space	**Ongoing**
11.	Review Space Management Staffing		Space Management activities have expanded while staffing to meet requirements has not.	Review staffing with HR	**In progress and carried over to 2011**

Fig. 2. Space management objectives for 2010.

1.2.1.4 Planning and Project Management – 2010

Strategic projects ongoing or undertaken during 2010 are as follows:

- Efforts were made to address the overall projects backlog that had developed in 2009
- Emergency Power infrastructure implementation process continued with some delays due to funding shortfalls.
- The Upgrade of the Faculty of Engineering and the Built Environment (FEBE) was started in 2010 to ensure successful ECSA accreditation in 2011.
- Data loggers were acquired to assist in metering and verification processes.

2009 PROJECT ROLLOVERS & 2010 BUDGET APPROVED PROJECTS			
2009 PROJECT ROLLOVERS		**TRANSFERS 2009 / 2010**	**BALANCE REMAINING**
Overall Projects - Operations	**= 134 Projects**	129 801 319.00	15 122 933.90
CTS Projects	= 51 Projects		
Completed Projects by CTS	= 41 Projects		
Project Rollovers to 2010	= 10 Projects		
(Projects not completed in 2009 due to technical delays, redefined scope of work assessments, budget constraints or inconclusive tender processes. 14 projects were closed or transferred in 2009 due to lack of funds)			
2010 PROJECTS		**APPROVED BUDGET 2010**	
Overall Projects - Operations	**= 74 Projects**	41 000 000.00	12 024 556.25
(The 74 Projects does not include the 10 projects rolled over from 2009 as these projects were also not finalised in 2010 for the same reasons as 2009. The 10 projects will be closed and transferred to other projects for the 2011 budget cycle).			
CTS Projects	= 38 Projects		
Completed Projects	= 27 Projects		
Project Rollovers to 2011	= 11 Projects		

Fig. 3. Project Summary for 2010 including rollovers from 2009.

1.2.2 Progress to date - CTS

- Progress is identified as per each CTS section. Numerous actions are multi-campus projects.
- CTS provided the leadership to source a suitable CAFM system according to Thrust 6. The CAFM will be implemented in a phased approach.
- The selection of a CAFM system at end 2010 will have a positive effect once implemented. It is a system that can be used and applied over a multi-disciplinary range of areas. A multi-campus implementation will assist in Thrust 3

to bring each campus on par with one another. CTS would be involved with multi-campus strategic planning and management, report writing and dashboard format information displays. The Campus Directors would be involved with normal day to day activities.

- CTS is required to provide data integrity and as such has also engaged the services of Steve Jaspan and Associates to provide accurate Site Development Plans for APB and DFC.

1.2.2.1 Maintenance Management Progress

- The refurbishment work at SWC was completed in 2010. CTS gave initial input during the planning phase
- Maintenance contracts for the 75 lifts in use on UJ campuses were tendered upon, with the tender closing end 2010. This in line with Thrust 1 and 8. Provision is made for regular safety auditing with monthly reports and the Annexure B's being checked and renewed every two years.
- A contract was established with Amadwala on 1 July 2010 to ensure that Fume cupboards maintenance work is conducted to ensure a safe and fit for purpose environment.
- CTS provided assistance with the APK Central Machine Room new cooling tower problems. The contractor had to repair equipment that was losing approximately R1000 worth of water per day. Repairs to 3 chiller units were specified by CTS.
- CTS also took over R8.1 million worth of work in the maintenance manager role in line with Thrust 6 to ensure service delivery on campus.

1.2.2.2 Utilities Management Progress

- Emergency Power systems were installed as part of the overall SWC upgrade. They were tested and commissioned in 2010 and provide emergency backup power to the Campus.
- Emergency power installation budget of R39 million was approved to allow for the finalization of the installation process. The emergency power backbone installation comprises 48 generators connected to the 11KvA grid on each campus.
- The tender was secured in 2010 for the supply of 36 UPS installations and DB boards in support of the emergency power installation.
- In line with Thrust 3 all campuses have been or will be provided with emergency power and lighting to lecture theatres and AVU systems. UPS power is also provided.
- 214 lecture venues were identified for new light fittings with high efficiency electronic ballasts. The Dali lighting management system has been implemented.
- The 214 lecture venues also have movement sensors to deactivate airconditioning and lighting when the venue has no people in it.
- Specific residences also have backup power for lights, and water heating systems that are user friendly and that work using gas and heat pumps.

- A tender process was successful in appointing a suitable contractor Amadwala) for the maintenance of Fume cupboards on APK and DFC. The fume cupboards were audited and additional funds secured to upgrade them in line with Thrust 1 and 8
- The first phase of the ICS Server room upgrade was finalized at begin 2010 which included both APK and SWC. The next phase was assessed and planning work was done toward the implementation of an improved level of emergency backup systems. As such an extra chiller was put in place for the APK A-Ring 3 Server Room at end 2010 with further actions planned for 2011.
- The FADA HVAC system was identified to be upgraded and an RFP was put out in this regard. Richard Pearce and Partners (RPP) were selected to do design work to rectify the HVAC deficiencies in the building.

1.2.2.3 Space and Architectural Management Progress

- The Space Management section provided initial assistance for the development of first order cost estimates and scope of work documentation for the proposed FEBE upgrade. SSI was then contracted to take the project further.
- Space management department engaged with UCT and other industry stakeholders regarding the processes and systems necessary to manage space data and provide accurate Hemis reporting. UCT successes and shortfalls were identified. UCT has a dedicated 3 person team of staff working only on space data.
- CTS provided support for the process of data collection and management for the Hemis Report to DoE.
- Louise Steyn from Central Administration was contracted by CTS to assist in the finalization of data sets for the alignment between Test and Production due to the volume of work required.
- Additional staff were appointed to assist with space management activities. Salome Machaba has been trained to work with space updating in the ITS environment. This is in line with leadership development for Thrust 6.
- Space information is also kept in an excel format to allow for cross referencing.
- CTS provided assistance to various departments regarding space planning and alterations.
- CTS provides graphic support in managing the UJ Operations Organograms in conjunction with HR
- Space section is assisting with layout planning for the SEWF Conference for 2011 (Social Enterprises World Forum)

1.2.2.4 Planning and Project Management Progress

- CTS provided assistance with the Faculty of Engineering and the Built Environment (FEBE) upgrade to meet 2011 ECSA accreditation requirements.
- CTS provided assistance with first order cost estimates regarding the DFC Perskor building; Inspections were done and CTS advised on the actual situation regarding the Perskor sub station. CTS also advised on the existing on site water supply of natural spring which is apparently the source of the Doornfontein

Spruit. As per risk management point 4.1.3 there is the risk of acid mine drainage water infiltrating the water supply.

- CTS was engaged during the design phase of the SWC refurbishment process regarding the inclusion of newer technology airconditioning and VRV heat transfer systems. Emergency power systems similar to APK was included to provide emergency room, passage and security lighting. Emergency water heating is also provided.

1.3 Gaps / issues

- The incomplete staff complement in CTS meant that not all areas of activity received the attention that they should.
- CTS have difficulty producing intelligent and timeous reports that are up to date and technically accurate for maintenance, utilities and projects. Space has benefitted from the emphasis to produce the Hemis report but this needs to be extended into the other areas of activity.

1.3.1 Maintenance gaps / issues

- CTS provides a planner function on APK and only APK Campus has a job card system. This needs to be brought into effect on all campuses to provide campus equivalence in line with Thrust 3.
- The Pragma support to the APK Call centre is minimal and attempts to get better support have only been partially supported by Pragma.
- CTS have also provided a maintenance manager function for APK in the Campus Director domain, in the absence of correct procedures for quality assurance on work done and signoff.
- SWC maintenance documentation and data files from the campus upgrade process must still be archived on Metrofile and incorporated and aligned on ImageNow and in a CAFM system to be of meaningful use.
- SWC still requires some maintenance information to be collected or audited regarding equipment and “as built” information. Only space information is relatively up to date.
- The requirement to support the UJ teaching and learning environment through well maintained infrastructure requires an integrated CAFM based asset maintenance register. Space information is the primary baseline document to which asset registers should be linked. Space data is up to speed but the next steps in the process need to be addressed.
- Infrastructure management needs the space data to be aligned with assets and processes in other systems. Updated asset registers need to ring fence key areas of operation and should include but not be limited to the following:
  - Generator equipment and installations
  - UPS Equipment and installations
  - 11Kva Transformers
  - Substations and mini-substations
  - High tension (HT) and Low Tension (LT) switchgear
  - Building , equipment and asset condition assessments
  - Safety devices and systems

- Battery systems
- Airconditioning equipment
- Water heating and cooling systems and water treatment facilities.

1.3.2 Utilities gaps / issues

- Electricity utility metering on APB and SWC indicating a potential account payment arrears of approximately R20 million. Errors are partly due to the local authority not reading meters and providing correct and up to date accounts. The APB meter is also not reading correctly. These inconsistencies must be clarified and resolved.
- Due to budget shortages during the SWC upgrade process movement sensors were not installed in the lecture theatres to deactivate airconditioning and lights. The BMS systems installed are standalone and are not integrated into an energy management system. This will require an internet link to the CTS BMS management centre on APK.
- The two new residences at APK and SWC also do not have movement sensors.
- Utility account information must still be linked to the correct stand numbers. Preparation work done in 2010 to improve accountability and link buildings to sites must be continued. Excel spreadsheet information needs to be integrated into a CAFM system to be fully effective.

1.3.3 Space Management gaps / issues

- Space data was manually captured in 2010 and needs to be functioning in an integrated manner.
- Space management and space allocation was managed on an ad-hoc basis. It was difficult to do long range planning around office space needs.
- Available office space for expanding departments on all campuses is very limited

1.3.4 Planning and Projects gaps / issues

- The tender process timeline is quite lengthy and has resulted in significant delays from project inception to execution. This negatively affects service delivery to clients.

2. Human Resource Management

2.1 Overview of Employee Profiles

- CTS has two (2) permanent employees on post level P5 and P8
- CTS has eight (8) temporary appointments. Post levels are on P7 and P11. The remainder are paid from CTS temporary salaries allocation.
- CTS employed 3 student assistants each for a period of 4 months during 2010.

CTS engaged with HR and the E.D. Operations regarding the proposed UJ Performance Management system. Key Performance areas and Key Performance Indicators were identified theoretically as far back as the CTS Synopsis document of begin 2010. Work done in this regard must still be expanded upon and implemented in practice to provide fit for purpose staffing in support of Thrust 6

2.2 Equity Profile

- CTS have 3 African Males employed.
- CTS has 1 African female employed
- CTS has no Coloured or Indian staff
- CTS has 5 White males employed
- CTS have 4 White females employed.

2.3 Status of Qualifications

Assessments of some posts were done in 2010 with the process to be continued in 2011. Appropriate alignment need to be implemented to serve the key thrusts of the university.

- The CTS Director post was reviewed and reevaluated. It was identified that a qualified professional engineer with the necessary fit for purpose experience is a prerequisite.
- The senior manager post for both maintenance and utilities was evaluated. Each require a professional engineer with the appropriate fit for purpose experience.
- The vacant Architectural Technologist position and the Space and Architectural manager posts need to be reevaluated.
- The Quantity Surveyor post was evaluated and successfully advertised.

2.4 Appointments, promotions, resignations, deceased, and succession planning

- CTS and HR interviewed and selected a suitable candidate for the post of CTS Director to start in 2011. The candidate accepted but then was not able to join UJ due to previous commitments. HR is currently searching for a suitable candidate.
- CTS and HR interviewed and selected a suitable candidate for the post of Quantity Surveyor on post level P7. The new appointment is to start in 2011.
- There were no other new appointments, promotions, resignations or deceased individuals during 2010.

2.4.1 Succession Planning

No succession planning took place within CTS during 2010.

2.5 Achievements of employees

- There were no notable academic or other achievements by CTS staff during 2010.

2.6 Staff Development Programme for 2010

2.6.1 2 Staff members attended the annual Green Building Conference

2.6.2 2 staff members attended a two day conference by SSI on Facility Management in the Higher Education Sector

2.6.3 2 Staff members attended the annual HEFMA conference

2.7 Summary of Skills and Competencies within CTS

- Mr. De Wet – Senior Project Manager Post N1316 is the acting CTS director and also handles project management and liaison with all stakeholders regarding maintenance, utilities, space and project planning and management..
- Jurgen Greeff – Systems Manager Post N1318 handles the BMS system to monitor and control environmental conditions in various locations on APK. The BMS system has approximately 200 sensors that need to be monitored.
- Mr. Greg James – Space and Architectural Manager Post N1319 and the Space Management staff (Mr. Jongi Mfenguza and Mrs. Salome Machaba) handle the various space alteration requests and also manage the space data input into the ITS system for Hemis Reporting purposes.
- Nathan Coetzee – Junior Project Manager – Assisted for 2010 with general project management duties and on-site location and verification of utility meter readings.
- CTS have two ladies in the call centre running the Pragma On-Key system. They handle all incoming calls and requests for maintenance related activities. They also then send out the necessary job-cards to UJ maintenance staff to action the work to be done.
- CTS 2010 has two administrative staff to assist with secretarial and administrative functions.
- CTS makes use of student assistants to assist with specific tasks requiring extra manpower.

3. Stakeholder Report

- Due to the varied nature of activities undertaken by CTS, relationships with other UJ departments and external stakeholders must be developed and maintained. This is to provide the necessary resources, human, intellectual and material to fulfill the many tasks that CTS must engage in on behalf of UJ.
- CTS have relationships with professional groups and individuals specific to the four areas of maintenance, utilities, space and projects. These are primarily in support of strategic thrusts 1, 3, 6 and 8

3.1 Internal UJ Stakeholders

- Faculties and Departments
- UJ Planning and Resource Committee
- CTS was involved with the UJ Energy Efficiency Committee to ensure that the energy challenges facing UJ are dealt with from a broad base of expertise.

3.2 External Stakeholders

- CTS, in conjunction with SSI (A DHV Company) in the process of reviewing and updating numerous contracts that UJ has with external service providers. The contracts are being aligned as they are outdated or are in a number of cases unfavorable toward UJ. The SLA components are also being revised to improve quality and level of service delivered to UJ.
- CTS engaged the assistance of Station7 (S7) to assist in reducing the UJ electricity account by 30% over the next 3 years.

3.2.1 Maintenance Contracts

- System in use for maintenance management for 2010 was On-Key (Pragma Computerized Management System) Ver. 3.2
- CTS have maintenance contracts with external service providers as follows:

Lifts maintained by Dr. Theo Kleinhans:
- Melco Elevators
- Kone Elevators
- Altech Vertigo (Wheelchair Lifts)
- Otis Lifts
- PLS

Air conditioning systems maintained by:
- Air Technology Services
- Master Air Conditioning

Sprinkler Systems maintained by:
- Cross Fire Maintenance

Fume Cupboards maintained by:
- Amadwala

Chilles maintained by:
- York international
- Johnson Controls

Water Treatmen done byt:
- Sud Chemie Water Treatment
- Total Water Management

Generators maintained by:
- New Way Motors
- Diesel Electric

UPS systems maintained by:
- Meissner
- Masterguard Power Systems

Quantity Surveying done by:
- DDP Quantity Surveyors

3.2.2 External Utility Service Providers to UJ:

- City Power
- Johannesburg Water
- Johannesburg Waste
- Eskom

3.2.3 Planning and Projects

- DDP Quantity Surveyors provides additional assistance to CTS for project assessment, planning and execution.

4. Sustainability Report

4.1 Governance of the Division

4.1.1 Overview / Governance Structures

- UJ Corporate Governance policies and guidelines ensure that the correct procedures are followed with regard to formalizing tender documentation, the tender processes and establishing contractual agreements with external service providers. It also applies to the execution of correct business practice procedures
- UJ Corporate Governance reports to the Registrar who is responsible to the DoE for the application of correct governance procedures.

4.1.2 Quality Management Processes

CTS have a culture of transparency and accountability. Tender processes must follow the correct procedures and are linked to correct corporate governance processes. Internal monitoring is provided by both DDP Quantity surveyors and the Tender Office to ensure that correct processes are followed. This is a constant process, in line with Thrust 6 and 8

4.1.3 Risk Management

- The Fume Cupboards upgrade and FEBE upgrade are in process to improve health and safety conditions and ECSA accreditation for UJ Laboratory facilities.
- Risk assessment feedback reports are submitted to the Planning and Resource Committee for consideration, decision and directives for implementation.
- CTS is continually involved in the process to identify risks to UJ that are placed on the UJ risk register for review and assessment.
- A significant risk to UJ are the potential financial penalties for exceeding national electricity reduction targets. This needs to be addressed directly to ensure an equitable outcome.
- The potential risk of acid mine drainage water infiltrating UJ boreholes on APB, APK and DFC is a serious threat. It is unknown if the SWC could also be affected. Clean water supplied by the boreholes as used by UJ would then become a liability. It would not be able to be pumped for use. If it were it would require processing to be usable.

4.1.4 Financial Review

CTS is continually involved with the following processes to ensure value for money from tender processes:

- CTS does an initial project needs assessment to correctly identify the scope of work
- CTS then provides a first order cost estimate.
- The project is reengineered if necessary to reduce cost implications and provide a fit for purpose solution.
- The tender documentation and bill of quantities is also aligned with correct procurement policies.
- CTS assists with tender evaluations
- CTS is continually engaged to improve the quality of processes.

4.2 Social Responsibilities

- CTS is involved in providing layout planning assistance for the Social Enterprises World Forum Conference of 2011 being hosted by UJ. The theme for the conference is “Social enterprise as a catalyst for sustainable development” http://www.sewf2011.com/index.html
  - Some assistance was provided to students seeking information regarding maintenance processes or infrastructure installations for their projects.

4.3 Environmental Sustainability

- Correct utilities management has the potential to provide extensive financial savings through correct metering. It may be advisable to install individual metering per building. This will identify problem buildings and isolate critical areas for alignment. It will provide a systematic base from which to manage and apply sustainable processes.
- The BMS Trend building management system is in use on APK campus. APB and SWC have BMS systems installed to a limited extent. The BMS system would need to be expanded to incorporate all campuses and to monitor all aspects of building control. This would actively improve the ability to manage and reduce energy usage thereby improving efficiency and sustainability.
- An 800 Kl water tank was installed on APK and supplied from the existing APK borehole. The water is chlorinated and can also therefore provide a level of self sufficiency in the event of a water supply problem with Joburg Water.
- Grey water reclamation projects are underway in conjunction with FEBE and students.
- Alternative energy was investigated for solar water heating of residences.
- Wireless ripple relay systems were investigated to control water heaters.
- Meetings have been held with City Power and Eskom to reduce the cost of electricity supply to make it more sustainable. Power must also be supplied according to the National Energy Regulators norms and standards.

4.3.1 Carbon Footprint

- Final raw data is at KPMG and they will calculate the Carbon Footprint and give us the final calculations in mid February 2011. Managing the utilities will reduce the Carbon Footprint. After CTS receives the final Carbon Footprint calculation, subject matter experts will do metering verification on UJ meters to establish a benchmark comparison to see where savings on electricity and other utilities are nededed. An action plan can be drawn up to address the way forward.

4.3.2 Energy usage / savings

- Total usage for as per raw data for the carbon footprint assessment - 2010:
  - Electricity 67 765 640 Kwh
  - Water 673 000 Kl
  - Gas 32 424 Giga Joules

- Catbot fuel 166 000 liters (A specific fuel type, similar to diesel, for use in boilers. Made by SASOL, it has a very low sulphur content).
- Generators 20 260.8 Liters Diesel
- Diesel 129 174 Liters
- Petrol 114 915.3 Liters

4.3.3 Water consumption / savings

- Waste water: Fixed amounts per month on different bulk, domestic and commercial sites.
- Water readings were not taken regularly and not compared to the local authorities such as Johannesburg water. There was therefore no control on water readings. All locations of water meters are not identified and therefore no readings can be taken on these meters to compare to the local authorities. Challenges for CTS in 2010 was to get information on the physical positions of meters to compare the readings

4.3.4 Waste Management

- UJ Waste as per raw data for the carbon footprint assessment - 2010:

General waste	1298 tons
Building rubble	407 tons
Hazardous waste	66tons
Medical waste	55 tons
Recycled waste	137tons

Fig. 4. Summary of UJ waste produced during 2010.

5. CONCLUSION

Overall CTS has made some improvements in certain areas but has not advanced in others. Work still needs to be done on filling vacant posts. The lack of an integrated management system meant that performance measurements could not be kept to refine best practice activities and identify problem areas.

CTS through 2010 was not able to make progress with maintenance systems. The On-Key system from Pragma was on a monthly rental agreement, and did not provide the scope for improvements in management or systems. Utilities management made progress during 2010. Extra resources began to be allocated to addressing inconsistencies in measuring and monitoring utilities account information. Space Management also made headway during 2010. The HEMIS report was submitted on time at the end of May 2010 and the staffing complement has been improved. Planning and Project Management benefitted from the assistance of DDP

Quantity Surveyors through 2010, although there were still inconsistencies in the management of projects.

The need is also apparent to broaden the view of CTS to accommodate not only the technical and mechanical functioning of UJ, but to do it in a manner that takes global responsibility into account. It is only through a holistic approach that the ideal of sustainability can be realized. UJ is not an island but an inherent part of the fabric of South African society, intellectually, socially, economically and environmentally. As such UJ has a responsibility to lead the way not only in research and innovation, but to serve as a prime example in the application of sustainability principles. It is perhaps after all simply a deeper interpretation of the UJ Vision, Mission, Values and Strategic Goals. CTS have a vital role to play in this process of aligning UJ business processes toward greater sustainability.