	Description of Science and Technology	X	Current Year Appropriations
	Department of Science and Feelinology		Supplemental Appropriations
	Philippine Council for Industry, Energy and Energing Teennotegy Trees		Continuing Appropriations
)	19-013		Off-Budget Account

Department Agency **Operating Unit**

Organization Code (UACS)

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	UACS	Physical Targets						Physical Accomplishments					Remarks
Particulars	CODE	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10 +11)	13	14
Part A									· ·	<u> </u>			
I. Operations			<u> </u>	<u> </u>	<u> </u>				<u> </u>		· · · ·		
MFO 1 - Industry, Energy	300000000			1									
and Emerging Technology]												
Policy Services									· ·				
						<u> </u>		<u> </u>	├	+			
Performance Indicators					·	16	16	9	6	-	31	15	
1. No. of policy advisories		16	-	-	-		10	Í					
provided	<u> </u>	0.00/		0.0%	90%	90%	90%	90%	90%	90%	90%	-	
2. Average percentage of		90%	90%	9078	,0,0								
policy advisories rated						1							
3 Percentage of policy	<u>}</u>	90%	90%	90%	90%	90%	90%	90%	90%	90%	. 90%	-	
advisories that have been													
updated, issued and			1		1	1							
disseminated within the													
last three (3) years						·}			<u> </u>				·
MFO 2: Research and	30000000	0	4					1					
Development Management													
Services for Industry,	1			1									
Energy and Emerging											<u> </u>	L	
Performance Indicators	+	+	+										
1 Number of proposals	+	62	63	63	62	250	32	23	84	230	369	119	
evaluated _					<u> </u>						1		L

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	The second Francisco (Technology Desearch and Developme	nt
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Agency **Operating Unit**

19-013 Organization Code (UACS)

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Particulars	CODE	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10 +11)	13	14
Percentage of projects recommended for approval that subsequently received funding through the governing council/EXECOM		90%	90%	90%	90%	90%	100%	100%	100%	100%	100%	10%	Percent accomplishment includes release of DOST funds to PCIEERD monitored projects
Percentage of Project proposals acted upon		90%	90%	90%	90%	90%	100%	100%	100%	100%	100%	0	
2. Number of ongoing projects monitored		200	200	200	200	200	244	244	241	285	285	85	
Percentage of projects completed within the past four years that are published in recognized journals or utilized by industry		90%	90%	90%	90%	90%	93%	93%	93%	93%	93%	3%	
Percentage of monitored projects reviewed within the year		90%	90%	90%	90%	90%	90%	90%	100%	100%	100%	10%	

Department	Department of Science and Technology Philippine Council for Industry, Energy and Emerging Technology Research and Development	<u> </u>	Current Year Appropriations Supplemental Appropriations
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	UACS		P	hysical Targe	ets			Physic	al Accomplishments			Variance as of Dec.	Remarks
Particulars	CODE	ist Quarter	2nd Ouarter	3rd Quarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Part B				<u>.</u>									
Major Programs/Proj	ects												
KRA No. 3 - Rapid, I	nclusive an	d Sustained	Economic G	rowth					· · · ·				
COMPETITIVE IN	DUSTRIE.	S											
Electronics Industr	y .					.	, <u> </u>			Established the three	1		
the Electronics Product Development Hub		electronics pro- - Conduct hu	oduct develop iman resource	oment center e development	workforce		Construction of EPDC Building is almost done - Conducted software training for Altium	building on July 14 at the MIRDC - DOST compound	of the tools and equipment - Inquiry of several companies (such	operational (3) facilities - Identified 37 prospective clients - Started providing EMC (11/(2/15) and			
-							Designer and Solidworks (Design and Flow Simulation)		as Sharp Philippines) on the services offered by EDPC - Micrologic Systems Inc. availment of PCB Prototyping Services of EPDC - Quantel Philippines Inc. rental of venue at EPDC building for their seminar entitled "Seminar on Conducted Immunity"	testing (11/12/15) and PCB prototyping services (07/20/15) - Conducted software training for Altium Designer and Solidworks (Design and Flow Simulation) for project staff			
Establishment of the Advance Materials Testing Laboratory (ADMATEL)		- Increased n - Increased n - Market AI Industries an	revenue by 50 number of clia MATEL serv nd Academe	9% ents by 50% vices across of	ther		- Generated income of P953.3K & added fourteen (14) new customers in Q1'2015 - Meeting/Marketing Roadshow with the Association of SEIPI Purchasing Managers (ASPA)	- Revenue = P1.4M - New clients = 17 - Technical service requests = 65 - PNS/ISO/IEC 17025 certified/accredited	 Revenue = P 1,495,750 New clients = 27 Technical service requests = 79 Ist Audit Surveillance of ADMATEL's ISO 17025 on October 8 and 9, 2015 	- Revenue - P4.99M II 2015 - Customers increased from 44 in 2013 to 108 in 2015) - Philippine Accreditation Bureau (PAB) accredited two ADMATEL laboratories (Thermal and Chemical & Metallurgical) for PNS ISO /IEC 17025: 2005.			-
Establishing the Philippine Institute of Integrated Circuits	,	- Faculty immersion - Training modules and trainess					 Immersion in industry Lattice and Analog D Immersion in academ IIT) at UPD Total of 1,262 seats (Modules delivered an 	 2 faculty (MSUIIT and evices, Inc. 8 faculty (USC, BatSU, 494 trainees) were trained and developed: 46 	- Immersed 2 faculties in the industry and 8 faculties in the academe - Conducted 46 short courses of trainings with 1,380 trainees				

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D. Carlor	UACS		P	hysical Targe	ets			.	Variance as of Dec.	Remarks			
Particulars	CODE	1st Quarter	2nd Quarter	3rd Ouarter	4th Ouarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11 <u>)</u>	13	14
Manufacturing		.						. <u> </u>					·
National R&D Prog	ram for Na	tural Rubber	Processing a	nd Rubber Pr	oducts Manu	facturing		a second a	Identified 215	Prepared scope of	<u>г</u>	_	
Integration of Testing Services for Rubber and Rubber-based Products		- Renovation - Conduct of - Method val	of laborator training lidation and u	y facility	asurement		 Started the renovation of the selected rooms for housing the equipment Two (2) ITDI Staff and two (2) PCIEERD staff participated in the Benchmarking activity in Malaysian Rubber Board (MRB) Physical Testing Laboratory, Rubber Products Exhibition Centre (IRPECM) and Standard Measure Rubber (SMR) Laboratory 	-7 (TD) staff and 2 PCIEERD staff conducted plant visit to local Rubber company, NewPro Ind. Corp (formerly Titans Rubber), wherein the team observed the rubber manufacturing and testing facilities - Attended the Philippine Rubber Technical Group Meeting and ASEAN Consultative Meeting which will keep them aware of the local industries' need	 Identified 215 potential/target clients for rubber testing On-going completion of specifications for the following equipment: Hydrostatic Bursting Machine, Flammability Testing Apparatus, and Rebound Resilience Pendulum Hammer 	Prepared scope of renovation of Rubber testing lab (Upgrade to window analox and better lighting system of the room hallways) and 2 lab rooms for flammability test and bursting test			
Smart Textile Biop	howers R&	D Program					, <u></u>	1		<u> </u>	·	,	
Photocatalytic Multi-functional Natural Fiber Blended Technical Textile and Materials		- ZnO, TiO2 pineapple si blocking pro - Technolog TiO, and Zr pineapple-si - Efficiency TiO, and Zr	2 and ZnO-Ti lk and abaca operty yo on the appl nO-TiO, nano ilk and abaca and durabilit nO-TiO, nano	O, nanofinishe fabrics with er lication of nan- composite on ty evaluation o finish	ed pineapple, shanced UV o ZnO nano pineapple, of the ZnO,		- Cotton/piña showed gr stain lightness as compar- data supports the theory binder (TEOS in this case) is more probable in because hydroxyl group; form hydrogen bond wit TEOS	eater difference in red to polyester/ piña. The that cross-linking of the n cellulose-based fabrics s in the cellulose chain can h the hydroxyl groups of	Optimization of Pad-da and pineapple textiles Preliminary experimen the nanocomposite ratio textiles Preliminary characteriz abaca, pineapple textiles	y-cure method for abaca ts on the optimization of s for abaca and pineapple zation of nanofinished			
Durable and Regenerable Biocidal Hydantoin- grafted Polyeste and Lignocellulosic- fiber containing Toreiles	r -	- Hydantoin - Technolog recharging of textiles - Prototype textiles for materials	i-grafted natu gy on the graf of hydantoin hydantoin-gr technical app	ral fiber-blend fting, charging on natural fibe rafted natural f arels and func	led textiles and er blended fiber-blended tional		 Preliminary experimen pure pineapple and abac based from the optimize established on pure cotto 	ts on hydantoin-grafting of a fibers were conducted d condition that was on fabrics	- Optimization of Pad-d abaca, pure woven pine: polyester blend, woven and woven cotton-abaca - Grafting and chlorinat: textiles	ry-cure memor for pure apple, nonwoven abaca- cotton-pineapple blend, i blended textiles ion of abovementioned			

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	UACS Physical Targets							Physic	al Accomplishments		Variance as of Dec.	Remarks	
Particulars	CODE	1st Quarter	2nd Oparter	3rd Ouarter	4th Ouarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Mining and Minera	als Industry	y					,						
S&T Program for Re Assessment of the Terrestrial Biodiversity in the Selected Key Mining Areas in Mindanao Assessment of the Aquatic Biodiversity in the Selected Key Mining Areas in Mindanao	esponsible l	 Mining in Mindanao Disseminate and validate project findings Draft of scientific articles for publication and paper presentations Terrestrial biodiversity and monitoring plan Identify riparian flora in identified study sites Hematology description of bioindicator species Identify plankton and macroinvertebrate specimens Information, Education Campaign 					 Completed the wet and Completed preservation fauna specimens Organized 100% of the 85% done with the data Consolidated results on aquatic biodiversity assessment in freshwater and marine ecosystems Completed dry and wet data collection On-going Laboratory works and consolidation of year 2 data 	dry seasons surveys of the voucher flora and flora and fauna data sets analysis - The sampling area in Gigaquit where no mining activity occurs, have the highest biodiversity metrics in all attributes considered. The sampling area in Claver where there was mining activities, have the lowest diversity metrics. While the sampling area 'in Hinatuan, where no mining activity but considered as mining impacted site, has the next lowest diversity metrics - Data and recommendations from the study were utilized for policy improvement and crafting of roadmap for mining in CARAGA	Completed as of 31 July from USM, MUST and C Terminal Report	2015. Consolidating data SU to finalize the - Identified 98 species of riparian flora near mining sites of Caraga - Identified 163 macroinvertebrate species belonging to 87 families and three (3) phyla - Presented project results in various scientific fora			
Monitoring, Assessment and Profiling of Artisanal and Small-Scale Gold Mining in Selected Areas in Mindanao, Difference		- Design Intervention, Programs and Policies (IFP) attuned to the Mining Act and other relevant laws for the sustainable development of the ASGM sub- sector in Mindanao			r	 Introduced alternative through the application of Pilot Processing Plant P Over one hundred (100 Safety and Chemical Haduring the symposium. 	processing of mined ores of Integrated Copper-Gold roject.)) leaflets on Health and ndling were distributed	Extension until December 2015 was approved. Extension covers completion of IEC campaign, laboratory analysis and assessment of results	- Introduced alternative processing of mined ores through the application of Integrated Copper - Gold Pilot Processing Plant Project - Assisted Malbu Gold Hunters, Inc. in the application of Minahang				

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Ponticularr	UACS		F	bysical Targ	ets				Variance as of Dec.	Remarks			
Fariculars	CODE	1st Quarter	2nd Ouarter	3rd Ouarter	4th Ouarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
			1		•					Bayan - Tarpaulin posters on responsible mining were already distributed to the project areas			
Contamination Pathway and Pollution Management of Mining in Selected Areas in Mindanao, Philippines		- Provide top precipitation - Identify en - Assess imp	pographic fea i, temperature vironmental 1 bact of ASGN	tures and clim , humidity, et hotspots 1 on the envir	nate data on c onment		- Gathered climate data on precipitation, temperature, humidity and rain fall data at PAG ASA Hinatuan - Identified environmental hotspots at Surigao City, Surigao del Sur, Agusan del Sur - Digested water samples and analyzed heavy metals and Cyanide concentrations	- Conducted/attended group and coordination meeting for consolidation and review of output with the community of Sultan Kudarat and South Cotabato - Conducted community transect walk in South Cotabato for Y3 changes	Extension until February 2016 was approved. Extension covers completion of field works, laboratory analysis and assessment of results for appropriate policy recommendation	Completed the Atomic Absorption Spectrometry (AAS) for Lead (Pb), Nickel, (Ni), Copper (Cu), and Cadmium (Cd) for all water, soil, sediments samples and mie tailings			
Rehabilitation of Areas Affected by nickel Mining in CARAGA Region Towards Eco-restoration		- Informatio rehabilitatio - Population through assi mining area	n on gaps be n program är i re-establishr isted natural i s	tween recomm ind the implement nent of keystor regeneration (ended ented program ne species ANR) in	2	- Developed an engagement with Platinum Group Metals Corp (PGMC) and another potential partner is San Roque Metals Inc (SRMI) - Conducted soil and litter analysis of samples from the field of HMC and TMC (in both rehabilitated and Ecobel Area)	- Key Informant Interview (KII) and Focus Group Discussion (FGD) were done in partnership with the Socioeconomic Team since the subject is also part of their concern - Identified Sloping Agricultural Land Technology (SALT) as t an ecorestoration strategy	Extension until December 2015 was approved. Extension covers continuous monitoring of the growth of the trees/plants and measurement of level of erosion. Completing laboratory analysis and assessment of results	 Completed the macrosomatic culture of indigenous tree species Completed greenhouse experiments to evaluate the germination and survival of different plant species on soil for mined-out areas with varying soil amendments 			
Alternative Technology for Processing of Chromite and Laterite Ores: Fe Ni-Cr-C Alloy Production	> >	- Establish t smelling of - Assess the for processi	the optimal co chromite and e feasibility of ing of chromi	onditions for r laterite ores f the alternativ te and laterite	eduction ve technology ore mixture		- Mass and energy balar the existing technology a technology	ce comparison between and the proposed	Extension until Decembo Manganese is being stud alloy for stainless steel th content.	er 2015 was approved. ied to come up with an nat requires lower nickel			

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	UACS CODE	Physical Targets					-		Variance as of D c c.	Remarks			
Particulars	CODE	1st Quarter	2nd	3rd Overter	4th Quarter	Total	Ist Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Development of an Alternative Technologies for Small-Scale Gold mining in CARAGA and South Cotabato Region		- Physical and - Reports and parameters - Comparison leaching met	d chemical ar I graphs on th n of gold recc hods	alysis of sam le effect of di	oles Ferent 70 (2)		 Ore crushing and milling conducted Analysis of data is almo waiting for the other resu Optimal Iodide-iodine c determined 	g of ore samples were st done. The team is still its of the analysis. oncentration is already	Extension until December 2015 was approved. Optimization of the shaking table through adjusting the angel of inclination is being done. This also includes improvement of the process and removal of magnetite before smelting.	 The effluent and solid samples were sent to Ostrea Mineral Laboratories Inc. for analysis Conducted magnetic separation for river sand samples to remove the magnetite The project process two (2) tons of ore to produce three (3) gold beads. 			
ICT for Responsible Mining: Use of GIS, DSS, Datamining in Selected Areas in Mindanao		- Web-based project comj - Application attribute/ inf - Data collec	Information ponents n for feedback formation sub stion, process	system for the c mechanism mission to the ing and norm	e different and in-situ system lization		- Setting up of online inte - DNS is change to minin - Launching of the minin	erface for user's manual g.g.carsu.edu.ph g portal	Extension until December 2015 was approved. The project is dependent on the other 7 projects as the data from this projects are needed for the website.	 The mining portal is accessible 24/7 through stprmm.carsu.edu.ph Various links to the mining practices are posted in the mining portal Digitized the updated land cover map and hazard map from Project NOAH 			
R&D Program on C Black Sand Mineral Characterization	Copper, Nic	kel, Iron, Gol - Mineralog characteriza the Philippin - Quantify F black sand o - Economic will be iden	d & Chromiti ical and sedir tition of select nes fe, Ti, Zr, V a deposits valuation of tified from bl	e for Industrie nentological ed black sand nd other trace other trace ele ack sand depo	deposits in elements in ments that osits	ing Applicatio	ons - Recently approved last April 28, 2015	- No significant accomplishment yet	- Conducted fieldwork in reconnaisance activities sand	Zambales which includes and sampling of black			
Program for Rehat	ilitation an	d Restoration of Mined-Out Areas Through Phytotechnologies						I n.11.1	Nursery poit and	- High survival rate of	1	<u> </u>	
Proj. 1 - Conservation of Native Metallophytes, Phytochemistry of Nickel Hyperaccumula		- Demonstr native meta - Phytostab - Policy par - Phytomin	ate plots of re- llophytes ilization techno- ber and IEC n ing protocol	estored mined nology naterials	out area usin	g	 Discussion regarding the proposed pilot setup in MMC, together with the representatives of MMC. Nursery visit and survey of possible sites 	 rubitshed one paper in Phytokeys on "Rinorea niccolifera (Violaceae): a new nickel hyper- accumulator from the Philippines" and in Australian Journal of 	 Nursety visit and survey of possible sites for the pilot plantation. Polishing of the MOU with MMC for signing of the signatories. 	the native plants in ZDMC-DMCI - Reviewed national policies related to mining and drafted recommendations in the			

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Particulars	UACS	Physical Targets					4	Physic	al Accomplishments			Variance as of Dec.	Remarks
Particulars	CODE	1st Quarter	2nd	3rd	4th	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	Quarter_	Quarter 5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
rs and Phytostabilizatio n and Restoration of Mined-Out Areas in Palawan,			I				for the pilot plantation.	Botany on "Nickel hyperaccumulating species of Phyllanthus (Phyllanthaceae) from the Philippines"	A pottial experiment on	use of native metallophytes in coordination with Mines and Geosciences Bureau of DENR			
Project 2. Metal Bio-Indicator Plant Species of the Philippines		- Collect pla - Nursery ex - Growth chi - Field testin	nt propagule periments (in amber experi ag (in-situ)	-situ/ex-situ) nents			Plant propagation set- pps were established in the 5 sites in sollaboration with our nstitutional partners - Database on species (1,905 entries) and specimens as part of DLSU Herbarium website - A potted experiments for 5 species of with was completed. Completed tydroponics experiments for 5 species of ferns to nonitor effects of averying concentrations of copper on rhizome and rhizoid growth and on a tuberous crop plant. - A potted experiment of Nephrolepis blowing was completed.						
Project 3. Copper and Arsenic Recovery as a Post Mining Activity Using Indigenous Plan		- Plant nurs: plant hypera areas - Workshop Doronila wi	ery in Ateneo accumulators with partner: ith Melbourne	de Manila Ur growing as sto s in CSU, XU e University	iversity with ock for minin and Dr.	g	- 2,000 young seedlings different ages	in individual pots of	 Nursery visit and survey of possible sites for the pilot plantation. Polishing of the MOU with MMC for signing of the signatories. 	Identified five (5) potential plants for copper accumulation 1. Alternanthera sessilis 2. Chenopodium ambrosioides 3. Solanum nigrum 4. Pityrogramma calomelanos 5. Pteris melanocaulon - Identified two (2) species for arsenic 1. Pityrogramma calomelanos 2. Pteris vittata Commenced on 19			
Field-testing of the Integrated Gold- Copper Mineral Processing Plant in the Regions	1	- Pre-deplo Compostel	yment of the a Valley	technology fo	r the		- Evaluation process of	September 2015					

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Particulars	UACS		P	hysical Targ	ets			Physic	al Accomplishments			Variance as of Dec.	Remarks
Particulars	CODE	1st Quarter	2nd Quarter	3rd Ouarter	4th Ouarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Support to Industr	y Competit	iveness									·		
Developing Capabil	ities for Bio	physics (Coil	ls, Cells and (Gels)								T	
Coils in Gels: Developing		- Micro rheo	logy protocol	s using optica	il tweezers		- Assembled and aligned the optical tweezer	- Assembled and aligned the optical tweezer system with fully	Completed last 30 May 2	012			
Capacinty to	1						functioning dual-optical	functioning dual-optical					
investigate gei							trans: AOD inserted for	trans: AOD inserted for					
composite							manipulation of drive	maninulation of drive					
viscoeiasticity						1	laser (1064nm) OPD	laser (1064nm), OPD					
							aligned for detection of	aligned for detection of					
							830nm laser.	830nm laser					
		ł						- Able to perform one-					
								particle active					
						1		microrheology on water				1	
	1							with lock-in amplifier					
Į								· · ·					
				J			Improvements to the	- Characterization of	Completed last 30 May 2	016			
Flow to Gel:		- I win optic	al tweezer and		chamber		- improvements to the	homogeneity has been	Completed and 50 may 2		1		
Developing	Į	system (10)	I-MCS)			1	microfluidic device to	established					
Capability to							the twin optical tweezer						
Ontical							setun						
Tuescerr with							- Rheometry						
Microfluidics							experiments were carried	ſ					
for						1	out and gelling time of						
Homogenized	1						fibrin gels has been						
Gelling							determined.						
Cells as Gels:	<u> </u>	- Semi-autor	mated cell vis	coelasticitym	easurement	1	- Prepared round	- Able to incorporate the	Completed last 30 May 2	017			
Developing		system usin	g a twin optic	al tweezerand	microfluidic		suspended fibroblasts	microfluidic chamber in					
Capability for		chamber sys	stem (TOT-M	CS)			with pre-attached	the twin optical trap					
high Throughpu	t	-					fibronectin-coated bead	system, Performed cell-					
Cell Elasticity		1					for elasticity	bead flow experiments	1				
Sorting		1					measurements of living	for cell elasticity					
_							cell	measurement.					
							- Developed particle					· ·	
							identification LabVIEW						
							program for semi-	1			1		
						ł	automated trapping in						
1	1	1					microfiuidic chamber	1	1				t

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Particulars	UACS		Р	hysical Targ	ets			Physic	al Accomplishments			Variance as of Dec.	Remarks
Paroculars	CODE	1st Quarter	2nd Quarter	3rd Ovarter	4th Ouarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Software Application	ns for Educ	ation											
Development of a Filipino Language Writing Tool		- Monolingua - Design and style checker	al and paralle implement th	il corpus ne system - gra	ammar and		- Processing of MOA and other required documents	- No significant accomplishment yet; Commenced on 29 June 2015	- Slide the commencement on 16 July 2015	 Prepared sets of parallel reading materials for the automated reading tutor (ART) Generated recordings (instructions, feedback, and reference) that will be used in ART Prepared syllabus or list of contents for ART Prepared activity flow for all exercises in the ART 			
Developing an Automated Reading Tutor for Elementary Students of Filipino		- Three (3) s level - Speech rec language & :	ets of reading ognizer's pro acoustic mod	g materials for nunciation dic els	each grade		Processing of MOA and other required documents	- No significant accomplishment yet; Commenced on June 29	- Slide the commencement on 16 July 2016	 Identified and studied initial design of the ASR toolkits Completed data for development and testing 			
Developing Closed Captioning Systems for Philippine Languages		- Improved I (ASR) with - Context-ine Hiligaynon a - Modules for interface (Gl	Filipino autor autosegmenta dependent an and Cebuano or multimedia UI), and ASF	natic speech re ation feature d dependent A a, editing, grap	ecognition ASR for phical user		Processing of MOA and other required documents	- No significant accomplishment yet; Commenced on June 29	Slide the commencement on 16 July 2017	- Collected 5,525,462 Monolingual corpus and 23,262 sentence pairs (English-Tagalog) - Open source software (Crawler 4J) was used to collect the monolingual corpora			
Human Hands as Input Device for an Immersive Virtual Reality Experience		- Sensors for hand and finger tracking - Method, technique and algorithm for integrating human hands for immersive VR experience - Conference paper or patent application					- Processing of MOA and other required documents	- Introduced a game demo during the 2015 NSTW where players can grab a virtual sword and slash fruits	 Acquired tools and equipment needed Identified sensors for the hand and finger tracking. Leap Motion will be used for tracking the hand 	A working experiment indicating hand and finger tracking feasibility			
Development of Interactive Software and Teaching Guides for Grades 7-10 Mathematics	5	- 100 modul - Interactive	les across the e software and	five strands o I modules	f mathematic	s	- Processing of MOA and other required documents	- Attended the 7th ICMI East Asia Conference on Mathematics Education to understand other interactive software used in other countries	 The team focus on building modules and softwares that are not yet existing The team will come up with a priority list of 	A sample teaching guide was created and agreed by the team members based on the review on the Grade 7- 10 mathematics			

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Particulars	UACS		. Р	hysical Targe	ets			Physic	al Accomplishments			Variance as of Dec.	Remarks
raruculars	CODE	lst Quarter	2nd Ouarter	3rd Ouarter	4th Ouarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
					L			 Reviewed currently available software and identified activities for topics and competencies 	topics and to identify number of modules to be developed per strands of Mathematics (Geometry, Algebra, Statistics, Measurement and Number Sense) vis-a-vis per year level to complete the target 100 modules for the softwares.	curriculum of the Department of Education (DEPED)			
Versatile Instrumentation System for Science and Research		- At least 5 v designs for ti - Additional in biology, c environment curriculum - Conduct in schools in Li	rendor-neutra he VISSER h 20 laboratory hemistry, phy ial science ad -class pilot te uzon, Visaya	I microcontrol andheld / manuals and rsics, engineer apted for the c sts in differen s, and Mindan	ller hardware experiments ing and changing t high ao		- Processing of MOA and other required documents	 Established connections private schools in the Phi Philippine Science High the teachers' training and 	s with different public and dippines (including the School System) regarding in-class pilot testing.	Port and extend the VISSER library to accommodate the core hardware specifications and make the software library microcontroller-agile - Formulated additional manuals and experiments in biology, chemistry, physics, engineering and environmental science adapted for the changing curriculum			
Institutionalization Enterprise Center for Techno- preneurship: Outreach	and Streng	thening of Ted - Identify pa stakeholders - Explorator possible men	chnology Bus uticipating un s y meetings w ntors	<i>iness Incubat</i>	ion		Identified additional partners for collaboration: Bataan Peninsula State University; Visayas State University; and Mindanao State University -Iligan Institute of Technology - TBI Planning workshop with BSU - Delta batch pitch to Senior partners - Partnered with 1000 Angels (organization of angel investors) - TBI Planning workshop with BSU - Delta batch pitch to Senior partners - Partnered with 1000 Angels (organization of angel investors) - TBI Planning workshop with BSU - Delta batch pitch to Senior partners - Partnered with 1000 Angels (organization of angel investors) - TBI Planning workshop with BSU - Delta batch pitch to Senior partners - Partnered with 1000 Angels (organization of angel investors) - TBI Planning workshop with 1000 Angels (organization of angel investors) - TBI Planning workshop with 1000 Angels for the first pitch of Delta team						

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1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Establishment of a Green Technology Business Incubation (GTBI) facility in West Visayas State University		 Create/Laur Coordinate Recruit inte 	ich GTBI Wo	d Identified Lo	GUs		Creation/Launching of GTBI Website Coordination with DTI, LGUs of Iloilo (they were able to get a pledge of commitment from Iloilo City local government) Applicants have presented to Steering Committee	- Evaluated and recommended five (5) incubates - Conducted planning to utilize Solar Energy and Recycling of Water Resources as well as ISO application	- Start-up incubatees: 8 incubatees, 2 virtual incubators - Assisted incubatees for application of LTO and FDA for 8 products - TBI Facility with leasable space, laboratory facilities and support service offices - Forged partnership with Microsoft	 10 incubatees (including 2 virtual locators) One (1) graduated, partnered with Google; one (1) transferred to UP Visayas due to financial constraints Nine (9) products pending FDA approval 			
Support for the Establishment of the DOST-UP Cebu TBI at the South Reclamation Project (SRP) campus of the University of the Philippines Cebu (UP Cebu) *in coordination/tie- up with BOI's Industry Development Program		- Market, adv activities - Disseminate - Conduct tra	vertise, prom	ote and attend tors aff and TBI lo	to thi related		- Joined and market the 7 - 7 virtual locators accept locators) - Conducted 7 trainings f	BI on 23 events ted (more than target, 5 for staff and TBI locators	- Concluded on 31 May 2	2015			
Innovation Hub: Intramuros		- Innovation - Stakeholde - Entreprene - Knowledge	Facilities r Network urship c Creation an	d Disseminati	on		- Under evaluation	- Approved project on 11 June 2015	- Finalizing MOA and other requirements needed for the implementation	Commenced on 1 December 2015			- 100 - 200
Innovation Hub: Diliman		- Innovation - Stakeholde - Entreprene - Knowledge	Facilities r Network urship c Creation an	d Disseminati	Dn		- Under evaluation	- Approved project on . June 2015	- Finalizing MOA and other requirements needed for the implementation	Commenced on 1 December 2015			

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Particulars	UACS		F	hysical Targ	ets			Physic	al Accomplishments			Variance as of Dec.	Remarks
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1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12==(8+9+10+ 11)	13	14
Food Security													
Development of a Dipstick Assay Format for Detection of Salmonella in Food and Feeds		- Produce arr	plicons and	label as probes	s accordingly		 DNA fragments were gr 300bp Prepared 20 dipsticks w 	enerated from amplifieds p	roducts of 200bp to	 Developed dipstick assay format and established optimum detection protocol that would give a next day result Established sensitivity and specificity in food and feed samples 			
Pilot Scale Standardization of Products & Processes using Drum Drying Technology on Selected Raw Materials (Mango, Banana & Makapuno)		- Shelf-life o - Product apj makapuno	f drum dried	makapuno fla rum dried frui	kes its and		 Completed validation studies for mango and banan (3 trials each) Established processing conditions for drum dried makapuno flakes, on-going shelf life study Conducted application studies of the 3 products to corn flakes, oatmeal, bakery products, polvoron 						
Field Testing and Validation Study of Retort Food (Arroz Caldo) as Disaster Mitigation/Relie f Food using DSWD's and LGU's Distribution Protocol		- Continue s - Continue c retort food c	ontinue shelf-life study ontinue conduct of performance evaluation of rt food during aerial, land and water distribution				- Produced 11,577 packs at 200g/pk RTE chicken arroz caldo for commercial sterility testing at Fast Laboratories	 Established linkages in NCR, DSWD Davao for Delivered 5000 produc Cebu and NCR. A total of seventeen (17 were conducted at Asahi producing 22,000 pouche arroz caldo 	PSWD Albay, DSWD the field testing study. at test samples in Albay, 7) retort production trials Resources Corp. es (200g/pouch) chicken	 Produced RTE chicken arroz caldo at a commercial scale Transferred technology to Kai-Anya Food Manufacturing Established transport packaging design for aerial, land, and water distribution 			
Development of Plasma Technology for the Sterilization of Food Products Packaging, and Contact Surfaces in Food Processing		- Develop tr plasma steri contact surf	Develop treatment protocols for fast and effective lasma sterilization of food products packaging, and ontact surfaces in food processing				- Average D values necessary for the establishment of treatment protocols were determined for <i>E.coli</i> , <i>Salmonella</i> , <i>Listeria</i> in APJ plasma treated coconut water	 Microwave Atmospheric Plasma Jet (MAPJ) has higher sterilization efficacy compared to Microwave Atmospheric Pen Plasma (MAPP) The MAPJ treatments 	 An alternative sample for cheese powder, black pepper granules, is also being explored. Cheese powder samples were treated using (MAPJ) with treatment parameters set 	- Developed sterilization protocols for coconut water and cheese powder samples, PET and PP, and stainless steel surfaces	r		

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Faruculais	CODE	1st Quarter	2nd Ouarter	3rd Quarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Development of Overer Powder		- Optimize pr	rocess in the	production of	safe and high		- Ongoing establishment of appropriate dilution	were able to reduce microbial population on both low and high power settings. - Developed ring bread ne breadsticks incorporating	at 450 W microwave power and flow rate of 5 LPM air. Exposure times of 5, 10, 15, 20, and 30 minutes were applied. - Preliminary experiments were conducted to determine the efficacy MAPP and MAPJ using coconut water samples coodle crisp and oyster powder (residue).	- Established the processing steps in the			
Oyster Powder for Use as an Ingredient and Condiment		quanty oyste - Product cha - Consumer a	r extract pow aracteristics/s acceptable pr	der (OEF) pecifications oducts from o	yster powder		of appropriate uturon of oyster meat to water at 1:0.5, 1:1, 1:2, 1:3 - Three (3) oyster powder products was processed and will be analysed for its physical and chemical attributes.			production of oyster powder thru spray (extract) and cabinet (residue) drying - Established formulations for noodles, bread, and condiments incorporating oyster powder (residue) as ingredient			
Microbial colorants	and Biofla	vorants							1 :		1		-
Production, Characterization and Application of Red Pigment Produced by Monascus Purpureus M1018		Continue of scale produc colorant Continuie of <i>Monascus</i> Conduct sta colorant prod	ptimization o tion of <i>Mona</i> characterizati ability and sh duced by <i>Mo</i>	on of colorant elf-life studies nascus	or the bench us M1018 from s on the		- Most vital physical factors that affect the production of colorant by <i>Monasus purpureus</i> M1018 were determined. These factors were subjected to central composite design to determine the optimum conditions for the production of the colorant at the highest possible yield.						
Program on Techno	logical Sup	port for the L	lpgrading of	Local Cacao	and Cocoa Ir	ndustry		· · · · · · · · · · · · · · · · · · ·			. <u> </u>		
Project 1. Improving the Quality of Solid Cocoa Liquor including Molded Cocoa		- Establish p liquor/ mold & sensory p - Determine cocca produ cocca bean p	rocessing par ed cocoa nib roperties processing p cts using the processing lir	ameters for so and improved arameters for designed and te	blid cocoa l its hygiene intermediate fabricated		Coordinated with CocoaPhil on the transfer of experimental beans (5 lots) from Davao to Manila - Appropriate extraction	 Processed 8 batches of cocoa beans @ 10kg/ batch into tablea using fermented beans Analyzed properties of cocoa butter extracted 	essed 8 batches of - Completed on 30 June 2015 beans @ 10kg/ into tablea using inted beans Jyzed properties of a butter extracted				-
Nibs and Developing the		- Appropriat developed/ir	e storage cor nproved proc	ditions for ducts			time could not be established as the	using fabricated hydraulic press					

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Particulars	UACS		Р	hysical Targ	ets			Physic	al Accomplishments			Variance as of Dec.	Remarks
raniculars	CODE	1st Quarter	2nd Ouarter	3rd Ouarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Capability of Small Scale Processors in the Manufacture of Intermediate Cocca Products			ha _ a				difference in the volume of butter extracted was almost equal.	- Completed the analysis of samples under storage					
Project 2. Microbial Community and Biochemical Profiling for Microbial Augmentation and Development of Quality Indicators for Cacao Fermentation and Processing		Microbial c cacao using r -Chemical ch cacao - Enumeratio present durin fermentaries	community pr molecular me hanges occurr on and isolation ng cacao ferm	ofile in fermer sthods ring during fer on of microor; rentation from	ntation of mentation of ganims different		 DNA has been extracted from samples and PCR amplification using yeast-, LAB- and LAB-AAB-specific primers are underway Fermented cacao bean samples from Day 0 to Day 5 of fermentation were frozen immediately after sampling to stabilize the samples - Data on plate count of yeast, LAB, AAB and other bacteria already gathered but still being analyzed 	- Completed protein extraction and fractionation of 56 samples (Lucena, Davao, Local Commercial and samples from abroad)	- Completed on 30 June 2				
Project 4. Design and Fabrication of Equipment for the Production of Local Cocoa Products		- In-house te equipment - Performant	sting and deb	ougging of cho	ocolate		Continued the in-house testing and debugging of traditional equipment - Developed process for roasting cacao beans in 10 mins. at 120°C and 130°C to a loading capacity of 10kg						
Dev't. of Competence of the DOST Food Innovation Center		- DOST FIC trained on pr - Most innov	Food Produ roduct design vative produc	ct Developme and developr its from regior	nt teams ment aal FICs		- Processing of required documents	Organized and implemented training of FPDTs from the following regions: 2, 4A, 4B. 6, 7, 8, 9, 10, 11, and NCR - Started product development of : a) rice -based beverages; b) sugar canc juice; c) improved traditional confectioneries (yema); d) trife in brine					
Development of Nar	nobiosenso	rs and Nanosi	and Nanostructured Materials from Agricultural By-products for				icts for Enhancement of Food and Agricultural Productivity and for Environmental Sensing and Remediation						
UPLB Project 1- Bench-scale production of Filters for the Removal of		- Scaled-up nanosilica formulations hydrogels - Formulate	optimized pro s and of tyros and condition	oduction of m sine modified on n the field tria	odified chitosan ls of the		roduction of iron-modified nanosilica powder and - Conducted - Iron-modified nanosilica beads and performance comparison Nanosilica Powder and Ironmodified by silica-chitosan beads, activated carbon and Tyrosine - Modified						

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Particulars UA CO	UACS		P	hysical Targe	ets	Physical Accomplishments						Variance as of Dec.	Remarks
raruculars	CODE	1st Quarter	2nd Ouarter	3rd Ouarter	4th Ouarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Arsenic from Contaminated Water Using Modified Biopolymer- Silica Nanocomposite Materials		remediation j - Relative on water sample	ediation process elative oncentration of As(III) to As(V) in field er sample ptimized conditions for the bench-scale duction of the engineered periplasmic binding tein						iron modified nanosilica	Chitosan filter materials - Scale-up production of modified silica nanobead formulations to 50 g scale			
UPLB Project 2- Bench-scale Production of Nanosensors for the Detection and Analysis of Arsenic in Contaminated Water		- Optimized production o protein - Evaluate pe EPBP using - Conduct fie	conditions for f the engineer erformance of arsenic contar eld testing of t	r the bench-sc red periplasmi the SPIO- im minated water the SPIO- im	ale ic binding imobilized · samples nobilized		Results of arsenic bindin, the EPBP fluorescence decreased with increasing These findings, along wit EBPB were presented as Philippine Chemistry Co. Davao University, Davao	g experiments showed that g arsenic concentrations. th the purification of the an oral paper at the 30th ngress held at Ateneo de o City, April 15-17, 2015	 Improved yield on the wild type and mutant bacterial periplasmic proteins due to change of method to isoelectric precipitation. A decreasing trend on the fluorescence quenching at increasing arsenic concentration for both wild type and mutant periplasmic proteins were observed. 	 Improved yield and quality of bacterial periplasmic binding protein (bPBP) produced 			
UPLB Project 3: Bench-scale Production of Hand-held Nanosensors for Methane Using Zinc Oxide Film		- ZnO thin fi methodology - Characteriz Microscopy	ZnO thin film using optimized materials and nethodology • Characterize thin film using Scanning Electron Microscopy (SEM) and X-ray diffraction (XRD)				- Fabricated ZnO films u conditions for the metho Layer Adhesion and Rea	sing the optimized d of Successive Ionic ction (SILAR)	 Zinc oxide thin film produced already optimized and characterized Optimization of palladium concentration, dipping and annealing is in progress. 	 Established quality control parameters: resistance values weight/thickness size of film voltage stability before, during, and after gas testing; durability surface uniformity 			
UPLB Project 4: Bench-Scaling of the Production of Cellulosic Nanocrystals from Kawayang- tinik (Bambusa blumeana) and Its Utilization for Renewable		- Increased p to 1 kg of C - Dispersible - CNC-reinf nanocompos	production of NC per batch e cellulose nar orced, environ site materials	cellulose nan nocrystals nment-friendl	ocrystals up y/renewable		 Results for the lab scale different treatments up to alpha-cellulose was com Defibrillation of Kawa samples prior to cellulos explosion Preliminary tests on the (with the supplier) was set of the supplier of the supplice of the supplice of the supplier of the supplice of the	e CNC production using o the determination of pleted yang-tinik bamboo flour e extraction through steam e use of mass colloider tarted	 Continuous production of cellulose nanocrystals using standard method and friction grinder supermass colloider equipment. Improvement of the processability of the cellulose nanocrystals not yet performed as PR for chemical reagents 	CNC production using standard methods (steam explosion) and ground bamboo using friction grinder mass colloider			

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Particulars	UACS		P	hysical Targ	ets			Physic	al Accomplishments			Variance as of Dec.	Remarks
rariculars	CODE	1st Quarter	2nd Quarter	3rd Ovarter	3rd 4th Total 1st Quarter 2nd Quarter 3rd Quarter 4th Quarter Total 2015 5 6 7=(3+4+5+6) 8 9 10 11 12=(8+9+10+ 11) 13 14								
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Nanomaterials									still in process			ļ/	
UPLB Project 5: Production of Nanosilica from Rice Hulls and Rice Hull Ash and Bench Scale Verification of the Production of Biodegradable Packaging Using Cassava Starch- RHA Nanosilica		- 40 kg of ric rice hull ash - Produce <1 - 10kg per ba - Improved p	e hull to proc per batch 00 nm silica uch of thermo roperties of t	luce 4.6 kg of oplastic starch the packaging	pure white		The addition of nanosili the mechanical strength of the thermopla Modification of starch o uptake and prevent disint	ca effectively increased stic film. can reduce the water egration of films	- Nanosilica is generated from rice hull ash using two methods-the hydrothermal and sol gel. Starch substrate was esterified with acetic anhydride, acetic acid and butyric anhydride to produce starch acetate and starch butyrate.	 Produced ~2 kg white rice hull ash from 30 kg rice hull ash per batch Nanosilica from both hydrothermal (~20 nm) and sol-gel (~30 nm) methods Plastic-like packaging films with good tensile properties and low water absorption (2 kg thermoplastic formulation extruded per batch 			
Bench-scale Production of Food- grade Nano- precipitated Calcium Carbonate from Local Limestone		- Plant set-up NPCC - Food grade - Distribute I	> for the prod > NPCC produced by the product of t	luction of food ucts spective users	1 grade		- Produced 80kl of food Calcium Carbonate (NPC	grade Nanoprecipitated C)	Completed on 30 June 20			-	
Microbial Production of Xylitol from the Hydrolysis Products of Selected Agricultural Wastes		- Optimize conditions for pre-treatment of corn cobs, corn stovers and sugarcane bagasse and cloaning of hydrolysates - Optimize conditions for xylitol production using Candida tropicalis and corn cobs, corn stovers and sugarcane bagasse hydrolysates under liquid culture fementation - Scientific papers for presentation and/or publication					- Processing of necessary	/required documents	Slide of implementation on 1 November 2015	No significant accomplishments yet			Targets set was based on their workplan but due to the slide of implementation targets also slide
Large Scale Production of Laccase from Trametes sp. for Food and Beverage Applications		Cultures or complex of cultures able to produce more laccase Optimized liquid culture fermentation for the production of laccase Scientific papers for presentation and/or publication					- Processing of necessary	/required documents	Slide of implementation on 1 November 2015	No significant accomplishments yet			Targets set was based on their workplan but due to the slide of implementation targets also slide

QUARTERLY PHYSICAL REPORT OF OPERATION

As of December 31, 2015

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rankulars	CODE	ist Quarter	2nd Quarter	3rd Quarter	4th Quarter	Totai	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
SUSTAINABLE EN	NERGY		-						T			· · · · ·	1
Wind Resource Assessment for Wind Power Systems		- Equipment	retrieval				- The wind monitoring ec Sur, Palawan, and Gener- gathering data since their - The data logger collects averages every hour, and averages.	upment in Surigao del al Santos have been installation. s data every 10 minutes, records hourly and daily	 Continuing wind data gathering in four project sites in Palawan, General Santos, Surigao del Sur and Surigao del Norte. PAGASA Administrator has approved the rehabilitation of wind monitoring equipment in Can-avid, Eastern Samar, as part of PAGASA equipment rehabilitation budget. 	 Project activities were mostly focused on gathering of wind data from NRG wind measuring equipment. Two project sites (San Vicente, Palawan and Lanuza, Surigao del Sur) has completed the 14 months data gatherings. 			
Engineering Design	1. Modeline	Assessment	Tools and De	velopment of	Renewable Er	nergy System	<u> </u>		- I.,		•		
Improvement of Locally Designed Micro- Hydro Turbines and Establishment of MHP Test Rig		- Inventory c - Planning ar - Construction - Design and	sessment Tools and Development of Renewable Energy Sys nventory of existing MHP system Panning and Design of Testing facility Construction of facility Design and development of high efficiency turbine				 Attended training on th developed a test rig labor Visited various MHP labor 	e development of MHP te ratory design aboratory facility for better	st rig wherein they have	 Improved locally - designed micro hydro turbines and establishment of MHP test rig Designed test rig 			
Tidal Current Energy Integrated Resource Assessment and Spatial Planning Tool		- Tidal curre - Site suitabi Tidal Currer - Web GIS-t tidal current	Tidal current resource maps Site suitability assessment for the development of Tidal Current energy Web GIS-based marine spatial planning tool for tidal current energy				- Conducted bathymetric - Processing/converting - Launched the website c	survey in Corregidor of government data into A nline with Philippine base	rcGIS layer and maps map and web pages	 Started developing hydrodynamic models for the country's tidal current potentials (Northern Luzon and Verde Passage) Launched the website online with Philippine base map and web pages 			
Smart Grid for Filip	pino House	holds									,		T
Project 1. Design and Development of a Smart Home Platform		- Deploy the Palawan - Conduct su months after	Deploy the smart home platform in 20 homes in Palawan Conduct surveys upoin deployment and after 1-3 months after deployment				- Installed/deployed 20 Smart Home System in Kalikasan Homes Subdivision, Palawan	- Successfully demonstra in Kalikasan Mutual Hor Palawan	ated Smart Home System mes in Puerto Princesa,	 Fabricated 60 units smartplugs, 20 units in- house-display (IHD) and 20 units branch circuit meters Deployed 20 smart home units in Kalikasan Home Subd., Puerto 			

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rarnewars	CODE	lst Quarter	2nd Onarter	3rd Quarter	4th Ouarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Project 2. Design and Development of an Advanced Metering Infrastructure (AMI) Emulator		- Testing and - Deploy AM	d software del Al emulator w	bugging ith prepaid mo	etering		- Completed testing and software debugging -Installed/deployed 20 AM1 emulator with Prepaid Metering in United Homes Subdivision, Palawan	- Successfully demonstra in Kalikasan Mutual Hon Palawan	ted Smart Home System nes in Puerto Princesa,	- Developed AMI - Deployed/tested AMI in Palawan			
Project 3. Prepaid Metering and Smart Home System : Technology Acceptance and Technology Features Studies		- Survey with	h Distribution) Utilities (DU	is)		 Survey Distribution Utilities (DUs) are being conducted, currently with 30% return rate 	 Completed the last set of the prepaid metering resp meters) Ongoing analysis of the 	of survey/interview with bondents (hosting smart results of interview	- Developed SEM - Surveyed household in Palawan on the use and acceptability of Smart Home System and AMI, on-going analysis of results			
Smart Wire Program	n												
Project 1: Energy Efficient Data Acquisition and Conditioning for the SmartWire Sensor Node Project		- Develop ar acquisition a 4-channel va	nd implement and signal con ariable timing	an integrated Iditioning sub DAQ	data system with a		-On going design of PCE of the test protocols unde	§ for testing (Development rrway)	- Recently approved project extension last 07 September 2015	2-channel data acquisition (DAQ) subsystem for the sensor node is in the final stages and is already being integrated into the SmartWire subsystem			
Project 2: Integrated Energy Harvesting, Storage and Regulation for the SmartWire Sensor Node		- Develop ar and RF Energy harv	nd implement	an integrated Wire sensor no	power line		 The regulation subsyster regulators, which are use energy harvester output to 0.5V supply used to pow Smartwire node. 	m is composed of voltage d to convert the noisy 1V to a clean and regualted er the rest of the	- Recently approved project extension last 07 September 2015	Multisource energy harvesting circuit for both RF and power line sources is underway, and combine them into a central capacitor			
Project 3: Energy Ultra- Low Power Computation and Communication for the SmartWire Sensor Node		- Develop and implement an integrated computation and communication subsystem for power line and Radio frequency communication					The design of the comm also been done. The node management SmartWire sensor node p tasks: Synchronization, p disassembly, power cycli measurements.	nunication subsystem has subsystem for the performs the following packet assembly and ing and parameter	- Recently approved project extension last 07 September 2015	Ultra low power communication and computation subsystems for the SmartWire sensor node initial testing and upgrading of the node management			

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Particulars	UACS	Physical Targets						Physic	al Accomplishments			Variance as of Dec.	Remarks
Tartaculars	CODE	1st Quarter	2nd Quarter	3rd Ouarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Project 4: Smartwire Resilient Data Transport		- Design and Layer modul network	develop the left for a large-	MAC protoco scale SmartWi	and Cross- ire sensor		 Improve harvesting mot components Implementation of Cont wireless simulation senso 	del to consider realistic tiki/Cooja-platform yr node	- Recently approved project extension last 07 September 2015	 Transport/Network Protocol Design MAC/Cross layer analytical model design 			
Program on Fuel Et	hanol Prod	luction from L	ignocellulos	ic Feedstocks									
Optimization of Saccharification, Fermentation and Purification processes for Pilot Scale Ethanol Production from Lignocellulosic Materials Synthesis of Carbon Nanotubes (CNT) - Silicon Heterojunction for the Fabication and		- Optimum process and optimum conditions for bench-scale ethanol fermentation - Scale-up design from bench scale data for future pilotscale studies - Pristine, high-density and predominantly semiconducting CNT film - Optimized heterojunction characteristics for solar cell applications - Solar Module Prototype					Optimized saccharificat treated lignocellulosic ma strategies to increase sub- Developed appropriate - Developed fermentation yeast strain - Developed a method to broth Prepared a scale up plant cellulosic material conver - 100 % of EM, XPS and analyzed the structure an CVD-grown CNT films - Already grown CNT us system. Currently optimin	ion conditions for pre- aterials and developed strate loading detoxification methods in schemes using local o concentrate low-ethanol or process design for rsion to ethanol I AFM were done to d composition of the ing the new CVD furnace zing the growth of the	- Completed last 30 June	2015			
Assembly of a Solar Panel						1	CN1 particularly in the C	LINT yield					
A Graphene-Based Electrochemical Supercapacitor for Solar Cells		- Superior quality Laser-Scribed Graphene - Optimize Laser-Scribed Graphene Electrochemical cell (LSG-EC) - Energy storage cell - Solar module					The laser scriber is already set up, as well. The synthesis and the clowere done The synthesis and the clowere done The synthesis and the clowere done and are be	ady prepared and haracterization of LSG haracterization of LSG- eing optimized	Completed last 31 May	2015			
Synthesis of Metal Nanowires and Their Application in Foldable Transparent Conducting Electrode		 Simple and low cost synthesis method for metal nanowires by chemical reduction at low temperature General concept for the oxidation-state control metal nanoparticle Cheap and efficient metal nanowire printing process at low temperature 					 Nickel was successfully nanowiresand was confir EDX Silver and Copper nanc glass and polymer substr Fabricated glass electro of <1000hm/ sq.at a tran 	v coated on Cu med by SEM, XRD, and owires were spin-coated on ates. odes with a sheet resistance smittance of >80%	- Spin coating of the ink was not pursued due to the small size of the substrate. Meyer rod was instead used to coat the flexible substrate.	- Silver (Ag) nanowires conducting films on glass substrate with sheet resistance of 30 ohms/sq at 85% optical transparency. (Spin- coating method)			

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Denstanderer	rs UACS		Р	hysicał Targo	ets			Physic	al Accomplishments			Variance as of Dec.	Remarks
rarticulars	CODE	1st Quarter	2nd Ouarter	3rd Ouarter	4th Ouarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
										- Flexible Ag nanowire conducting films on polymer substrate (Cellulose acetate) with sheet resistance of 10 ohms/sq at 80% optical transparency. (Meyer rod coating) - Copper (Cu) nano- wires conducting films on glass/polymer substrate with sheet resistance of 450 ohms/sq at 60% optical transparency - Copper-Nickel (Cu-Ni) nanowires conducting films on glass/polymer substrate with sheet resistance of 300 ohms/sq at 70% optical transparency			
Flexible Nanohybrid Supercapacitor Based on Conducting Polymers and Metal Oxides		 Preparation Fabrication conducting p 	n and characto 1 of nanocom polymers and	erization of so posite materia metal oxides	lid electrolyte		- Synthesis of Polyvinyl alcohol, PVA as solid electrolyte - Reached 60% in chracterization for Compositional analysis, Structural Analysis, & Electro chemical Impedance Measurement - Synthesis of composite conducting polymer and metal oxides	 Synthesized Pani-ES, Pani-EB, PCBz, CuO, and MnO2 will be further evaluated and analyzed Characterized the polymers & metal oxide Characterized the PVA and PVA-ECI/EBr based on its morphology, mechanical properties, molecular interaction, and thermal properties 	 Conducting polymer- metal oxide composites were chemically synthesized: (Polypyrrole.Manganese dioxide, Ppy-MnO,) Three (3) electrochemical deposition techniques (galvanostatic, potentiodynamic, and potentiostatic) were conducted. 	 Fabricated super- capacitor device from - electrochemically prepared nano- composite electrodes Fabricated Polypyrrole- Manganese dioxide nanocomposite Developed electrode material (nano- composite material on flexible substrate) using electrochemical deposition 			

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	n. et dens	UACS		P	hysical Targe	ets			Physic	al Accomplishments			Variance as of Dec.	Remarks	
	Particulars	CODE	1st Quarter	2nd Ouarter	3rd Ouarter	4th Ouarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015		
ľ	1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12 =(8+9+ 10+ 11)	13	14	
	Development of Ink Using Carbon from Straight Pyrolysis of Glycerol as Electrodes in Printed Electronics		 Method of rization of cz Characteriz properties of substrates Exploratory carbon ink for 	ink formulatie arbon properti ation of hydro carbon ink fo y tests on pote ormulation	n and further es odynamic, dry srmulations or mtial applicati	characte- ing a different ions of the		 Design and fabrication of larger scale pyrolysis of g High resolution Transm Microscopy (TEM) of ca glycerol 	of home-built furnace for lycerol ission Electron rbon from pyrolyzed	 Silver and aramonium formate complex were synthesized and used in developing conductive inks for inkjet printer applications. Purification steps such as reduction via hydrazine improves the quality of carbon obtained from both crude and technical glycerol. 	 Reduced carbon particle size produced by wet ball milling and size segregation via centrifugation and filtration Carbon ink formulations (ethanol based) 				
	Development of Functional Nanocarbon-Based Catalysts for Biomass Conversion Processes		- Technical and theoretical research implementations - Synthesis of CNT using microwave induce plasma CVD apparatus					 Microwave induce plasma CNT production equipment undergoing thorough checking, re- starting, and tune up. 	- Finalized the methodology for the functionalization of CNT's which also includes the design of experiments	 CNT Synthesis using microwave-induced plasma CVD apparatus CNT Functionalization Operation of High Pressure Catalytic Reactor as Subcritical/ Supercritical CO2 deposition system 	- Synthesized carbon nanotubes (CNTs) using microwave induced plasma CVD apparatus - Assembled High Pressure Catalytic Reactor operated as subcritical/supercritical CO2 deposition system and tested to functionalize the CNT with carbonyl group				
	Development of a Low-Energy Ion Source System for the Synthesis of Diamond-like Carbon Films		- Fabricate component ready for assembly - Laboratory that will house the ion source system - Plasma and ion beam characteristics					- Chamber deign and drawings	- Integrated chamber, ion source and support system	- Finalized the design except for the flange specifications connecting the turbomolecular pump, gate valve to the vacuum chamber	Designed the vacuum chamber, extraction electrode system Designed and integrated the ion source system designs				

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D	UACS	ACS Physical Targets				Physic	al Accomplishments			Variance as of Dec.	Remarks		
rai uculais	CODE	1st Quarter	2nd Quarter	3rd Ouarter	4th Ouarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Fabrication of a Solid-State Rechargeable Li- ion Battery using Li71_a3Zr2O12 as solid electrolyte for Energy Storage Applications		• Raw materia (LLZ) solid e • Crystalline	als and powd lectrolyte LLZ with abo	ers of Li7La3.	Zr2O12 grain size		- LLZ solid electrolyte has been synthesized using solid state reaction and structurally characterized using X- ray diffraction	- Analyzed thermal properties, morphology, and other stuctural characterization of LLZ	- Synthesis and characterization of LLZ Li-ion conducting solid electrolyte showing conductivity value of 10- 4 S/cm - Initial fabrication of solid-state Lithium coin cell	 Synthesized LLZ Li- ion conducting solid electrolyte with 10exp-4 S/cm conductivity Initially fabricated solid state lithium battery coin cell 			
Nanostructured Electrocatalyst Composites for Direct Ethanol Fuel Cell: Preparation, Characterization and Performance Evaluation		- Metal oxide catalysts com	e promoted Pr posites	- and Pd-base	d anode		- Synthesized anode catalysts materials - Structural and morphological characterization of the materials - Electrochemical characterization using cyclic voltammetry	- Synthesized anode catalysts materials - Structural and morphological characterization of the materials - Electrochemical characterization using cyclic voltammetry	- Surface characterization using AFM were conducted on both synthesized platinum and palladium anode catalysts. - Platinum based anode catalyst were made using 2 methods- chemical and electrochemical synthesis	- Synthesized and characterized (electrochemical, physical, and surface characteristics) anode materials - Fabricated Membrane Electrode Assembly (MEA)			
Fabrication of Supercapacitors Using Indigenous Textiles as Electrode Materials		Textile-based composites with conducting polymers, carbon materials and metal oxides Comprehensive battery testing involving supercapacitor full cells Presentations in international/national scientific conferences and publications in internationally peer- reviewed journals					- No significant accomplishment yet; Commenced on 1 March 2015	 Initial electrochemical characterization of pristine piña, abaca, and raftia fabric revealed inferior electrical properties. Training on existing equipment has been performed, EIS training scheduled on July 18-26 in France 	 Preparation and characterization of the blended composite fabrics with conducting PPyand Pani Pretreatment of the Pristine Blended Woven Fabrics Preparation of the Polypyrrole/Water Hyacinth/Polyester Composites 	Optimized pre- treatments of the woven blended fabrics			

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Physical Accomplishments Variance **Physical Targets** UACS as of Dec. Remarks Particulars CODE 2015 2nd 3rd 4th 4th Quarter Total **3rd Quarter** 1st Quarter 2nd Quarter Total 1st Quarter Quarter Quarter Quarter 11 12=(8+9+10+ 13 14 7=(3+4+5+6) 10 8 9 1 2 3 4 5 6 11) SUSTAINABLE MASS TRANSPORT Intelligent Transport System (ITS) Program The server for the PhilMATIS was delivered last - 3 pairs of cameras Completed 2 flood Development of Database for the flood sensors for correlating are already in placed sensors in coordination traffic with on-street flooding along Espana January 28, 2015 a Philippine along Espana (both with ASTI - On-going Metropolitan Boulevard - Completed the vehicle north and south bound) adjustments/processing of the the data being Advanced retrieved to make 5 minutes interval for the data Initial testing/ volume count and Traveler operation of the senrsor classification analytics transmission Information were observed during System street flooding incidents (PhilMATIS) in the past months Installed 100 GPS units Delivered 100 GPS units wherein 72 of which On-going live testing Analysis, design, development and deployment of Advanced of the trapik org website in taxis were already installed in taxis traffic prediction model Traffic & for the taxi tracking in Completed the cloud-Analysis, design, development and deployment of Pollution relation to traffic and air based system with main incident and accident detection model Monitoring and pollution level of the url www.trapik.org with Analysis System the ff features: area. Based on GPS 1. View current - Developed 2 mobile Data, Air estimated traffic applications related to Quality Data & flow and traffic trapik.org website: trapik Engine Status speed on all roads and fair fare, both Data from of Metro Manila available for download Tracked Taxis in through googleplay (onfor any given Metro Manila going improvements). period of time 2. Query on regular pattern of traffic flows and speeds on specific roads 3. Detect anomalies in traffic flow and speed on particular road based on crowdsource

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QUARTERLY PHYSICAL REPORT OF OPERATION

As of December 31, 2015

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	UACS		P	hysical Targ	ets			Physic	al Accomplishments			Variance as of Dec	Remarks
Particulars	CODE	1st Quarter	2nd Ouarter	3rd Quarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Integrated Optimal Scheduling of Public Transport System along a Route (PUBFix)		- Inventory o (city buses) a characteristic - Pilot test th buses (wheth Epifanio de 1 its effectiven - Web-based for the existi	f the existing and determine s e proposed s er by simulat os Santos Av ess Public Trans ng city bus o	public transp e their service cheduling scht tion or actual t venue (EDSA) sport Informat peration in Me	ort system operating eme of city esting) along to determine ion System etro Manila		- Roadside 24-hour volun hours)	he count (2 days and 12	 Inventory of public transport along and feeding into EDSA including buses, jeepneys and AUV are 100% complete. On-going fabrication of the on-board bus monitoring system of passenger boarding and alighting 	Completed inventory of public transport along and feeding into EDSA including buses, jeepneys and AUVs; Origin-Destination of bus commuters			
Development of a Customized Local Simulator (LocalSim)		 Agent-base Calibrated t Integrated 1 	d traffic mod traffic simula ITS database	lels tion model platform		- - -	 Enhancements on user i node network using QT a exploration) Initial codes written for link and node representat 	nterface to create link and ind Visual Q++ (parallel user interface to build ion of road network	On-going improvements on the user interface and initial codes are being reprocessed.	Enhanced traffic modeling concept including the car- following and lane changing behavior			
Simulation and Evaluation of an AGT System Passenger Stations - Phase 2		 Modified finew system Performance Demonstration 	Modified functional safety test protocol to fit the tew system Performance testing and functional safety test runs Demonstration run				- Installed traffic signaling system - Fine tuned and tested AGT UP	 Installed traffic signalin Fine tuned and tested A Approved extension 	g system GT UP	- Simulated and Evaluated AGT System at full capacity - Functional automation system of AGT-UP			
Test and Evaluation of 120-Passenger per Coach Capacity Automated Guide- way Transit System		 Memorand personnel Test protoc Data gather endurance te 	Memorandum of agreement and Trained LGU ersonnel Test protocol for performance and endurance test Data gathered on AGT during its performance and durance test purs during wet season				- Request for extension	- Approved extension fro December 2015	m 1 July 2015 - 31	95% Completion of endurance test runs of about 6000 cycles on wet and dry condition			
Performance Testing of Five- Coach Centrally Powered Hybrid Electric Road Trains for Local Applications - Phase 2		- Test Protoc - Public Den	col (CRT/LC	RT)			Completed NDT Testi protocol. Memorandum of Unde City was signed last 06 N 3. On-going the Integrati 4. Procurement for the N LCRT are already award 5.Launching of CRT at C 6. Hybrid Electric Road Week (NSTW). Project Demo Ride.	ng and Performance Testin erstanding (MOU) with Lo Aay 2015. on for the Automation Sys lew Variable Frequency Dr ed to DAC Industrial Elec CDC Pampanga last 25 Jun Train was highlights in Na Team together with PMED	ng of CRT as per cal Government of Cebu tem of LCRT. rive (VFD's) to CRT and tronics, Inc. le 2015. tional Science Technology DSO was conducted a Free	Completed performance testing of CRT . Met Bus Operators for CRT Technology Presentation and Proposed Hybrid Articulated Buses			

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Destimites	UACS		P	hysical Targe	ets			Physic	al Accomplishments			Variance as of Dec.	Remarks
Particulars	CODE	1st Quarter	2nd Ouarter	3rd Ouarter	4th Ouarter	Total	lst Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
KRA No. 5 - Integrity	of the Env	ironment and	d Climate Cl	nange Mitiga	tion and Ada	ption							
ENVIRONMENT, C	CLIMATE	CHANGE &	DISASTER	RISK REDU(CTION						-	·	
Molecularly Imprinted Polymers (MIP) for the Targeted Purification of Natural Product Compounds		- Preparation pure compou	of MIPs for nds (lagundi,	isolation of fra banaba and a	actions of mplaya)		 Significant amounts of I mg of agnuside and 20 m Degradation studies of a observed that agnuside b which is the condition for 	agundi markers were extra g of isoorientin agnuside marker will be fu ecomes unstable at 70 degr r MIP production	acted and purified- 200 rther conducted. As it was ress Celsius for 24 hours	 Purified >I g of agnuside from lagundi Synthesized molecularly imprinted polymers (MIP) for agnuside 			
Design, Fabrication and Evaluation of Monitoring and Sampling Devices for Particulate Matter		- Documente device - Functional	d performanc	e characteristi eta-grade)	ics for the		 Design of the light scatt Design of the air sample with 10um, 2.5um, and 1 	ering optical monitoring d e and impactor which will um size fractions	levice measure particulate matter	Designed, assembled, programmed and test lab prototype of a functional monitoring device capable of a 24-hr operation with wireless control and data communication			
Radiation-induced grafting of nonwoven fabrics for waste water treatment to meet Class C effluent heavy metai standards		Optimum a concentration Data for ch results for in	bsorbed dose n obtained aracterized gr itial batch ads	and monomer rafted nonwov sorption test	r ven fabric and		 50% of the grafting exp first semester of project i FTIR spectrum of graft bonds from both pGMA surface by grafting was s On-going Analysis of n Chelsi Leather and Servi 	eriments for optimization implementation. ed PP-NWF showed peaks and PP, indicating that the uccessfully performed. netal ion concentration of v ces, Inc.	were finisehed during the corresponding to the modification of the PP waste obtained from	Characterized the grafted and functionalized nonwoven fabrics using Attenuated Total Reflectance-Fourier transform infrared spectroscopy (ATR- FTIR), Scanning Electron Microscopy (SEM) and Thermogravimetric Analysis (TGA).			
Design and Development of Aerial Mapping and Imaging Systems and Standards		- Research re - Successful experimenta	eport/conferen deployment a l sites	ace paper on i ind data gateh	findings nring on		- Attended a week long t the National Mapping an Authority (NAMRIA)	raining about GIS through d Resource Information	- Almost 50% in establis network in Lake Palakpa accurate maps	hing a ground control kin to produce spatially			

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			Off-Budget Account

De stievle m	UACS		Physical Targets					Physic	al Accomplishments			Variance as of Dec.	Remarks
Parneulars .	CODE	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Project e- Bayanihan: A Nationwide Web – Mobile Based System for Participatory Disaster Management		- Design, buil PINOY PAT - Capacity bu	d web based ROL 2.0 úlding	and mobile v	ersions of		- Conducted simulation activity of the system in Ateneo, Tacloban, and DILG Exhibit	 Created reports for inpu Visualization of SHERE Attended the Jrapid Con 	t in SHEREPO PO Iference	- eBayanihan was tested in full during typhoon Lando, All data plotted were displayed, LGUs did not report any difficulty in using the system, Best feature was the reporting tool which was used by NDRRMC team - Released Beta versions of the mobile platform			
Undarstanding And	Communic	ating Pick for	Community	hasad DRR P	rogram	I				of the moone platonin			
Voices of Yolanda: Narratives of Risk and Coping Among Survivors of Typhoon Yolanda in Tacloban City, Guiuan Eastern Samar and San Francisco, Cebu		- Ethnograph - Risk maps	ng Risk for Community-based DRR Program Ethnography of disaster Risk maps				- Currently on data organization and analysis	 The study revealed that responses to typhoon Yolanda, particularly in relation to calls for evacuation had been shaped by people's experiences with previous typhoons. Provided recommendations about the study 	- Concluded on May 2015	- Identified 31 safe areas, 12 unsafe areas (Participatory Risk Mapping) - Released BAKWIT (Terminal Report)			
DRR/CCA Proofing	of Critical	Infrastructure	es	oosed tempora	ry shelter		- Evaluated the	- Proposed a Design	-Compiled List on the	Finalization of design,	[
Steterspitcht of Temporary Shelter System for Disaster Stricken Areas		- recument report on proposed temporary shere: system - Prototype temporary shelter					temporary shelters based on existing standards and guidelines - Achieved preference of materials to be used in the design of the temporary shelter	scheme for the structural system & connection details	Studies and Design of Temporary Shelter - Started working on draft schematic designs based on proposed design criteria from Quarter II report	i.e. aesthetic for the prototype Temporary shelter			

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n (1	UACS		Physical Targets				Physic	al Accomplishments			Variance as of Dec.	Remarks	
Particulars	CODE	1st Quarter	2nd Oparter	3rd Ouarter	4th Ouarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
BAYANIHANETS: E	Building Ro	hust and Susta	ainable Coop	erative Comn	nunity Networ	rks							
Development of	I	- Protocol de	sign and simu	ulation module	e		- Processing of required	 No significant 	Completed MPTCP	- Successfully ported ns2			
a Multipath		- Testbed des	sign and comp	ponent			documents	accomplishment yet;	and LEDBAT ns-2	MPTCP simulation			
Transport		- Operational	emulation te	stbed				Commenced on 4 June	simulations	code ito a working Linux			
Protocol for		- Validation	results from e	mulation		•		2015	- Completed the MP-	kernel			
Cooperative		1				1			LBE design and	implementation			
Community									simulation modules	- Completed simulation			
Networks									- Done with the System-	modules, runs, and			
									level testbed design	results for MP-LBE			
ARC: An	· · ·	- Application	framework				- Processing of required	- No significant	- Validated application	Validated application			
Application	-					1	documents	accomplishment yet;	framework model via	framework model		1	
Framework for						1		Commenced on 4 June	prototyping	via prototyping and via			
Robust								2015	 Validated application 	analysis/simulation			
Communications									framework model via				
Transport over									analysis/simulation				
Community	1												
Networks		1				ļ							
Development of		- High throu	ghput routing	metric and co	ongestion free		- Processing of required	- No significant	- Developed the	- Established the design			
Routing Metrics		routing metri	ic C		U		documents	accomplishment yet;	Programs for computing	and determined the			
for High		Ĩ						Commenced on 4 June	throughput, Jitters,	theoretical and			
Throughput and								2015	Average delay and	Implemented the			
Congestion Free							1		others were .	routing metrics in NS2	1		
Routing over		1							- Established the design	- Performed simulations			
Wireless		4							for the following metrics	basis for Channel	1	}	
Community	l .	1							 Channel Busyness 	Busyness and		1	
Mesh Networks									Channel Capacity	Channel Capacity		1	
										<u></u>			
Marine Weather	1	- Two (2) Hi	igh Frequency	y Doppler Rad	lar (HFDR)		- Processing of required	- No significant	- Conduct meeting with	Completed Civil Works			
Forecasting using		systems insta	alled in NET(C & Masinloc	, Zambales		documents	accomplishment yet;	PDRRMC and visit the	activities at Zambales			
High Frequency		Ľ						Commenced on 4 April	possible site for the	(NETC & Masinloc)			
Doppler Radar						1	1	2015	project .				

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Particulars	UACS CODE	Physical Targets					Physical Accomplishments					Variance as of Dec.	Remarks
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	2015	
1	2	3	4	5	6	7=(3+4+5+6)	8	9	10	11	12=(8+9+10+ 11)	13	14
Flood Sensor, Development, installation and monitoringof Urban Flooding in Metro Manila		- Test of inst - Assembly a - Information campaign	umentation a nd installatio education a	ind sensors n of monitorin nd communica	ng stations		Conducted indoor stress test and distance image test Coordinated with the LGUs for the installation of the monitoring stations Provided project brochures	Testing of sensors/ instrumentation and electronic components for actual deployment Installed flood monitoring stations (enclosure in Quezon City)	- Installed a total of 21 flood monitoring fence - Installed 5units of Flood Monitoring Sensors	Deployed and installed 52 flood monitoring devices across the cities of metro manila (Quezon City, Manila, Mandaluyong, Muntinlupa, Pasay, Pasig, Malabon, Paranaque) - Conducted Information, Education, and Communication Campaign			

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