

# **YOUTH FOR TECHNOLOGY FOUNDATION (YTF)**

## **PROJECT PROPOSAL**

### **Building a Solar-Powered, Environmentally Sustainable Center for the New Owerri Digital Village (NODV)**



**August 2009**

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## **PROJECT SUMMARY**

The “New Owerri Digital Village” (NODV) is an embodiment of YTF’s mission to transform communities into enriched learning environments in which technology used appropriately enhances and expands opportunities for rural disadvantaged people.

The Owerri Digital Village was established 10 years ago by Youth for Technology Foundation (YTF) as a multi-stakeholder partnership between the Imo State Government, YTF and Microsoft Corporation. While the Imo State Government provided housing for the project, Microsoft provided seed funding. YTF developed innovative community based programs for youth.

Until recently, the Owerri Digital Village (ODV) was located on Okigwe Road in Owerri, Imo State. In April, the ODV team was asked to relocate to a new building as the state government was in dire need of office space for their ministries and civil servant employees. The suggested relocation site was not appropriate for our staff, students or YTF as an organization for many reasons. First, it was not in the center of town hence a drastic increase in the cost of transportation for our beneficiaries and secondly moving would require that YTF spend thousands renovating a very dilapidated building that it did not own and there was no guarantee that we wouldn’t be asked to move again. YTF had to make a very difficult decision, but one that our team and the people we have positively served over many years consider the best long-term option.

YTF’s decision was made based on consultation with the people we have served over the years; our program beneficiaries and their communities. They knew our work, they voiced the real impact that YTF’s work provided, they voiced that if not for YTF opening up doors for them, they never would have had an opportunity to succeed. Long-term, they construed that the best option would be to build a sustainable facility that YTF owned. Sustainable construction, our beneficiaries thought, would be the key as it would mean more comfortable surroundings, more reliable power supply, less computers malfunctioning due to heat and good water supply.

The “*New Owerri Digital Village*” will continue to embrace YTF’s mission by providing for its staff, students and community, a newly-constructed, fully-owned facility that is energy and water-efficient, uses low-cost, sustainable building materials and techniques, and through its construction and use, contributes to socio-economic needs such as job creation, employment, education and entrepreneurship capacity building. By the students learning in an energy-efficient building, and taking classes that educate them on sustainable technology, they will increase their awareness that a more comfortable learning and sharing environment can be an integral part of a community's commitment to the environment.

## **NEEDS ASSESSMENT**

YTF has worked in Owerri and its surrounding areas for nearly a decade. South-eastern Nigeria has historically been considered an underserved region due to the effects of the Nigerian Civil War (Biafra) that still linger in the minds of many. The war, caused by irreconcilable ethnic tensions, led to the starvation and deaths of at least one million people, most of whom were children. The average population in rural areas in Imo State is mostly aged and rural development has collapsed. In over a decade of working in this region, YTF has empowered young people to see the value of staying in their local communities and developing them through the acquisition of technical skills and competent manpower.

Until only a few years ago, one of the major barriers to social inclusion was illiteracy. Although this continues to be so, we are also faced with another kind of illiteracy that is related to the acquisition of information and communications technologies (ICT) skills. Not just ICT's, though, but technologies that have a positive impact on the environment. With ICT's constantly changing the world as we know it, these technologies are now becoming the fundamental pillars of social change, education, economic growth and global competitiveness.

The collaboration between Renewable Real Estate Development Services (RREDS) and Youth for Technology Foundation to build the “*New Owerri Digital Village*” as a sustainable, ecologically conscious development will address social and economic deficits plaguing rural areas in the developing world - erratic electricity supply, lack of potable water and unemployment

- 1) Lack of stable electric power: The Nigerian power sector operates well below its estimated capacity, with power outages being a frequent occurrence as a result of poor technology, transmission losses, illegal tapping of lines, and no investment in technology. Only 36% of the country's total population, and 10% of the rural population, is connected to the national power grid system, and these users are short of power supply over 60% of the time. There is insufficient power generated to support the entire population. Although the Nigerian power generation capacity is at 6,000 MW as of 2006, less than 4,000 MW is actually produced, and demand from off-grid generators exceeds 10,000 MW. The electricity crisis is the most important infrastructure bottleneck, crippling industry growth and significantly increasing cost of housing, goods and services. Approximately 85% of commercial firms in Nigerian use diesel-powered generators as an alternative source of power generation, and in many cases, the cost of fueling and maintaining these generators is prohibitive to business success.

NODV will provide its users – students, staff and community – with uninterrupted

electricity supply using renewable solar energy to supplement the incessant power supply from the national grid, and ensure reduced operating costs. Solar panel technology will be used to collect, store and dispense solar energy used to power energy-efficient appliances and lighting in the center. In addition, the NODV students will have access to a curriculum that provides them training on the green science and technology behind harnessing renewable sources of energy. They can then use this knowledge and experience to start businesses in the sustainability sector if they choose.

- 2) Lack of reliable, potable water and sanitation: In Nigeria, only 65% of urban dwellers and 30% of rural dwellers have access to improved source of drinking water, Nigeria is not on track to reach the MDG target of 75% coverage for safe drinking water and 63% coverage for basic sanitation by the year 2015. A lack of clean water and sanitation contributes to epidemic acute and chronic diseases in the region such as diarrhea, cholera, and typhoid. In addition, improved sanitation in schools in Africa has been shown to decrease absenteeism and increase enrollment of female students.

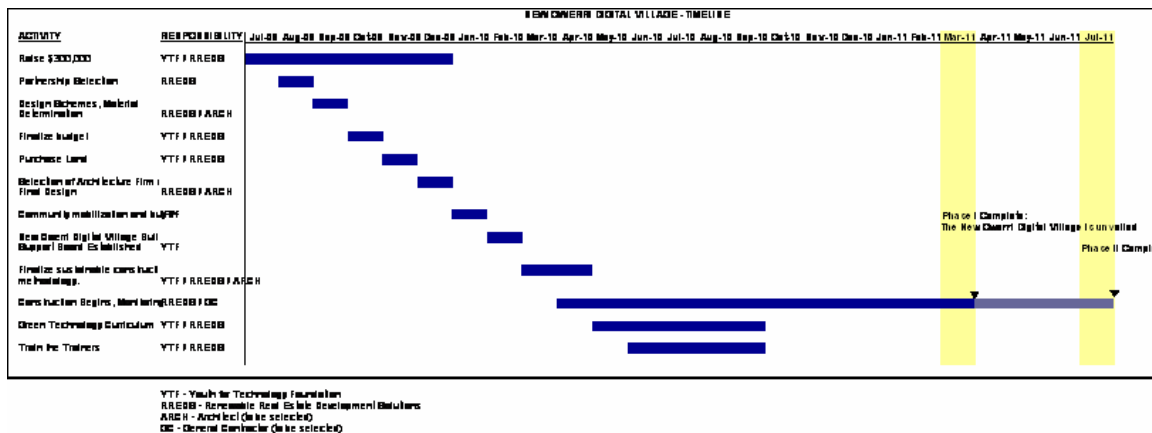
The NODV will provide sanitary conditions and clean water supply to its users, in addition to conserving water by recycling water and harvesting rainwater for building and tenant use.

- 3) Another important mission of the NODV is to educate local community members with the concepts, materials and methods used in the construction of a green building. YTF anticipates the NODV will indirectly impact over 400,000 people in the first two years of operation. Community members will be trained daily as part of the construction process. Unemployed and unskilled workers will learn marketable skills about constructing buildings using sustainable technology, materials and techniques, creating a "hand up" for local citizens.

## **PROJECT OBJECTIVES AND GOALS**

1. YTF's capital campaign addresses the need for a state-of-the-art, teaching facility that will house the "*New Owerri Digital Village*". The center will serve as the Africa headquarters for YTF and will train the next generation of youth leaders, providing them with the best technology and teaching facilities available anywhere. The center will be equipped with six classrooms, an i-Café, a library, a multimedia training hall, an indoor gym, three administrative offices and a computer refurbishing room. The facility will be a center for research and teaching, fostering the creation of new knowledge, the training of a highly skilled workforce with the potential to drive economic development in the region, state and the nation.
2. The total budget for the "*New Owerri Digital Village*" is \$300,000 and the goal is to raise this amount from individual donors, like you, who want to partner with YTF to make a difference in the lives of these young people. YTF is optimistic that with your help, we can achieve at least one-third of our goal (\$100,000) on the Global Giving platform.
3. The "*New Owerri Digital Village*" will be designed and constructed according with the tenets of a sustainable, environmentally-conscious design. Sustainability strategies to be employed include: the use of a solar panel electrical system to supplement the irregular power supply provided by the national grid; rainwater harvesting and greywater recycling; the use of passive systems enabling the building to require less electricity; and the use of locally-available construction materials and local labor. These sustainability concepts will benefit the YTF by providing efficient management of energy consumption, lower utility and operating costs, and provide a more reliable supply of water and electricity, hence passing down cost-savings to program beneficiaries. In addition, The NODV will be a model for replication and will showcase to the students and their communities the lasting environmental, social and economic benefits that such construction will provide.
4. The "*New Owerri Digital Village*" will incorporate sustainable materials, use local labor and materials to stimulate the local economy, consume little energy and create a strong sense of ownership for local people.
5. The "*New Owerri Digital Village*" will serve as a "hub" where community members can hold meetings, educational events or just learn from and share with each other. It will be a center of learning, entrepreneurship and health and well-being for families, youth, small business owners, women, educators and students and all who live in the community. The center will be a replicable catalyst for the local economy and will provide an economic base for rural dwellers.

DELIVERABLES AND TIMELINE			
Timeframe	Deliverable	Activities	Responsibility
July 2009 - December 2009	Raise \$300,000 for the building of the "New Owerri Digital Village", West Africa's first green community technology and learning center.	Word of mouth, employee giving campaigns, letters to funders and grant applications to donor agencies.	YTF / RREDS
August 2009	Partnership selection	Identify experienced partners and like-minded stakeholders including architects and developers.	RREDS
September 2009	Design and construction materials determined	Prototypes and sketches designed. Estimates determined for construction materials based on various vendors.	RREDS (in collaboration with local manufacturers).
October 2009	Finalize budget	Review proposed budget to incorporate stakeholder and partner feedback	YTF / RREDS
November 2009	Purchase Land	Audit zoning requirements	YTF / RREDS
December 2009	Selection of Architecture Firm	Bid project out to final list of architecture firms.	RREDS
January 2010	Community mobilization and buy-in	Organize focus groups with community members and meet with local leaders to gain input on building design to ensure its economic and technical viability with respect to local tradition and culture.	YTF
February 2010	New Owerri Digital Village Building Support Board Established	Board will disseminate information to the local community about the benefits of sustainable construction and timing for development.	YTF
February 2010 - April 2010	Finalize sustainable construction documents	Review and sign off on construction documents and schematics.	YTF / RREDS/ARCH
April 2010	Construction Begins	General Contractor begins construction of Phase I for the NODV, construction monitoring and reporting	RREDS (in collaboration with Architect and General Contractor)
May 2010 - September 2010	Green Technology Curriculum	Begin authoring and compilation of green technology curriculum - teacher training guides and student lessons	YTF / RREDS
June 2010 - September 2010	Train the Trainer	Training for local community members and YTF staff on green technology.	YTF / RREDS
March 2011	Phase I Construction Complete	Ongoing construction	RREDS (in collaboration with Architect and General Contractor)
April 2011	The New Owerri Digital Village is unveiled	Project construction complete	YTF / Community -at-Large
September 2011	Phase II Construction Complete	Ongoing construction	RREDS (in collaboration with Architect and General Contractor)



## ORGANIZATIONAL BACKGROUND

### Youth for Technology Foundation (YTF)

YTF is an independent, non-governmental, non-profit organization. Founded in 2000 by Njideka Harry, YTF is registered as a non-profit/charitable organization in the United States and Nigeria.

YTF's mission is to transform rural communities into enriched learning environments in which technology used appropriately enhances and expands opportunities for marginalized people, specifically youth and women. YTF sees technology not as an end in itself, but as a *means*, focusing on its use in researching, documenting and disseminating information about a concrete social issue such as health, economic sustainability, employment, human rights and civic responsibilities. All YTF programs start with identifying an issue and then using appropriate technology tools to bring that issue to the forefront of the minds of decision makers. YTF provides youth the tools to help them convert their ideas into action.

YTF pioneered the digital village 'movement' in West Africa, with the establishment of the Owerri Digital Village (ODV), a Microsoft Corporation funded project, a decade ago. Digital villages are rural community technology and learning centers that serve as hubs for villagers to converge, learn and share. To date, YTF has worked with like-minded grassroots organizations to establish additional digital villages in Nigeria and Uganda with additional centers planned in Cameroon and Ethiopia in 2009 and 2010 respectively. YTF's core programs are TechKids, TechTeens, TechCommunities and TechEnhancement. In addition, YTF partners with other agencies to design and implement other programs, such as Program Offering Women are Empowerment Resources (POWER) and the Young Nigerians Health Tele-Academy.

Since YTF's founding, more than 30,000 young people have participated in YTF's innovative technology and entrepreneurship programs and more than 240,000 community members have been positively affected by this work.



Njideka Harry's vision for developing countries, beginning on the continent of Africa, is one that brings the benefits of information and communication technology to rural communities, is systemic and starts with the youth. She is regarded highly as a social entrepreneur amongst Africans in the Diaspora. Mrs. Harry has B.B.A Finance from the University of Massachusetts, Amherst, and received a Post Graduate Fellowship from Stanford University.

### **Renewable Real Estate Development Solutions, Inc. (RREDS)**

Founded by Nnema Byrd, Renewable Real Estate Development Solutions, Inc. (RREDS) is a woman-owned, social entrepreneurship, start-up venture that focuses on developing and providing consultancy in the construction of quality, integrated, and holistic solutions to environmentally-sustainable buildings in communities across Nigeria. RREDS aims to develop buildings that self-generate the bulk of their electricity supply (using solar panel technology) for lighting, cooling and appliance use, utilizing less energy through passive design and energy efficient and solar appliances, collecting rainwater for use by the inhabitants, and recycling grey water. The opportunity is significant given the country's fast growing population, deteriorated building stock, erratic power supply, limited clean water supply, and need to reduce environmental pollution. RREDS leverages a team of experienced partners both in the U.S. and Nigeria, access to cutting edge research, and support from sustainable development experts.

Mrs. Byrd has over eight years experience in architecture, real estate development and finance. She has worked at various institutions on projects totaling \$800 million, such as the redevelopment of a school in Manhattan and an investment in a LEED-certified office building in Baltimore. She has a B.Sc. in Architecture and an MBA in Finance from Massachusetts Institute of Technology.

<b>Budget - the New Owerri Digital Village (NODV)</b>					
<b>Budget Description</b>			<b># of Units</b>	<b>Cost per Unit (USD)</b>	<b>Estimated Total Cost (USD)</b>
<b>Land</b>					
Land Acquisition			-	-	17,500
<b>Total - Land</b>					<b>\$ 17,500</b>
<b>Hard Construction</b>					
Building Construction			-	-	50,000
Solar System			-	-	40,000
Landscaping			-	-	2,000
<b>Total - Hard Construction</b>					<b>\$ 92,000</b>
<b>Soft Construction</b>					
Architectural, Engineering, Permits			-	-	5,200
Selection of Architects and Engineer			-	-	3,000
Legal & Insurance					1,200
Prototype development			-	-	2,400
<b>Total - Soft Construction</b>					<b>\$ 11,800</b>
<b>Total - Land and Construction</b>					<b>\$ 121,300</b>
<b>Implementation</b>					
<b>Budget Description</b>	<b>Room Use Classification</b>	<b>Need</b>	<b># of Units</b>	<b>Cost per Unit (USD)</b>	<b>Estimated Total Cost (USD)</b>
<b>Classroom Block</b>					
<b>Technology Training Room 1 - TechKids</b>	Lab Space	Laptop Computers	15	300	4,500
		Printer	1	400	400
		Networking	1	500	500
		Student Tables	10	100	1,000
		Student Chairs	20	40	800
		Smart Boards	2	400	800
		Airconditioning Unit	1	800	800
		Mouse Pads	20	2	40
		Ceiling Fans	2	250	500
<b>Technology Training Room 2 - TechTeens</b>	Lab Space	Laptop Computers	15	300	4,500
		Printer	1	400	400
		Networking	1	500	500
		Student Tables	10	100	1,000
		Student Chairs	20	40	800
		Smart Boards	2	400	800
		Airconditioning Unit	1	800	800
		Mouse Pads	20	2	40
		Ceiling Fans	2	250	500
<b>Technology Training Room 3 - TechCommunities</b>	Lab Space	Laptop Computers	15	300	4,500
		Printer	1	400	400
		Networking	1	500	500
		Student Tables	10	100	1,000
		Student Chairs	20	40	800
		Smart Boards	2	400	800
		Airconditioning Unit	1	800	800
		Mouse Pads	20	2	40
		Ceiling Fans	2	250	500
<b>Technology Training Room 4 - TechEnhancement</b>	Lab Space	Laptop Computers	15	300	4,500
		Printer	1	400	400
		Networking	1	500	500
		Student Tables	10	100	1,000
		Student Chairs	20	40	800
		Smart Boards	2	400	800
		Airconditioning Unit	1	800	800
		Mouse Pads	20	2	40
		Ceiling Fans	2	250	500
<b>After-School Extramural Lesson Class 1</b>	Classroom Space	Student Tables	5	100	500
		Student Benches	10	80	800
		Smart Boards	1	400	400
		Ceiling Fans	1	250	250

Budget Description	Room Use Classification	Need	# of Units	Cost per Unit (USD)	Estimated Total Cost (USD)
<b>Classroom Block (ctd.)</b>					
After-School Extramural Lesson Class 2	Classroom Space	Student Tables	5	100	500
		Student Benches	10	80	800
		Smart Boards	1	400	400
		Ceiling Fans	1	250	250
i-Café	Business Center / Lab Space	Desktop Computers	15	800	12,000
		Printers	1	400	400
		Networking	1	500	500
		Student Tables	20	150	3,000
		Student Chairs	20	40	800
		Laminating Machine	1	250	250
		Xerox Machines	1	800	800
		Airconditioning Units	2	800	1,600
		Ceiling Fans	2	250	500
		Microphones/Ear Phones	50	5	250
		Mousse Pads	20	3	60
Library	General Use Space	Student Tables	5	100	500
		Student Chairs	30	40	1,200
		Desktop Computer	1	400	400
		Printer	1	400	400
		Airconditioning Units	1	800	800
		Ceiling Fans	2	250	500
		Bookshelves	8	200	1,600
		Carrel	1	50	50
Multi-Media Seminar / Training Hall	General Use Space	Student Chairs	40	40	1,600
		Lecture Style Tables	5	100	500
		Podium	1	80	80
		Microphone / Multimedia Equipment	N/A	400	400
		Overhead Projector	1	650	650
		Airconditioning Units	2	800	1,600
		Ceiling Fans	4	250	1,000
		Smart Boards	2	400	800
					6,630
Indoor Gym / Work-Out Room	General Use Space	Floor Mats	25	25	625
		Weights	N/A	N/A	1,000
		Treadmills	1	700	700
		Elliptical	1	800	800
<b>Total - Classroom Block</b>					<b>\$ 76,625</b>
<b>Administrative Block</b>					
Registration Center	General Use Space	LCD Screen / Set Up	1	200	200
		File Cabinets	3	200	600
		Tables	3	100	300
		Chairs	6	50	300
		Reception Seating	3	150	450
		Airconditioning Units	2	800	1,600
		Bookshelves	10	200	2,000
Career Counseling Office	Administration Space	Round Tables	2	80	160
		Counselor Table	1	100	100
		Counselor Chair	1	50	50
		Student Chairs	6	40	240
		Ceiling Fans	2	250	500
Staff Room	Support Space	Tables	3	100	300
		Chairs	3	50	150
		Ceiling Fans	1	250	250
		Smart Board	1	400	400
		Desktop Computers	3	800	2,400
Computer Refurbishing / Recycling Center	Lab Space	Tables	3	100	300
		Student Chairs	6	40	240
		Bookshelves	5	200	1,000
Server Room	Lab Space	Table	1	100	100
		Server Cabinet	1	250	250
		Student Chairs	3	40	120
Storage Room	Support Space	Tables	1	100	100
		Bookshelves	2	200	400
		Storage Cabinets	5	40	200
<b>Total - Administrative Block</b>					<b>\$ 12,710</b>

Budget Description		Need	# of Units	Cost per Unit (USD)	Estimated Total Cost (USD)
<b>PROGRAM COSTS</b>					
<b>EQUIPMENT</b>		Digital Cameras	2	250	500
		Video Camcorder	1	500	500
		Voice Recorder	2	200	400
		Flash Drives	50	5	250
<b>CLASS/OFFICE SUPPLIES</b>		Notebooks	500	1	250
		Printer Toner	10	80	800
		Books - Shipping Costs	N/A	N/A	1,000
<b>ADMINISTRATION</b>		NODV Center Manager	1	7,500	7,500
		Program Managers	2	4,500	9,000
		Program Coordinators	2	2,500	5,000
		i-Café Manager	1	4,000	4,000
		i-Café Staff	2	2,500	5,000
		Technology Manager	1	7,000	7,000
		"Green" Curriculum Manager/Trainer	1	7,000	7,000
		Scholarships	20	100	2,000
<b>COMMUNITY AWARENESS</b>		Mini Bus	1	5,000	5,000
		T-Shirts	1,000	2	2,000
		Refreshments	N/A	1,500	1,500
		Radio / TV	N/A	1,000	1,000
		Hand-Bills/Print Material	N/A	500	500
<b>OPERATIONS</b>		Mailing	N/A	N/A	1,000
		Telephone	N/A	N/A	800
		Internet	N/A	N/A	7,205
					9,005
<b>TOTAL BUDGET FOR NODV</b>					<b>\$ 300,000</b>