

# WHIRLWIND

Wheelchair



*Eric Thompson and his Whirlwind RoughRider®  
at the end of the Lindy Point Trail overlooking  
Blackwater Canyon in West Virginia.  
Read more about this adventure inside.*



## To Our Friends and Supporters

2013 has left Whirlwind with a brighter future than 12 months ago although, after five years of steady annual growth, we encountered our first real bump in the road.

The good news is that while we started the year with only one large-scale manufacturer of our flagship product, the improved version of the RoughRider® wheelchair, we now have two large-scale manufacturers. The Kien Tuong Private Manufacture Wheelchair Company in Ho Chi Minh City, Vietnam, a manufacturing partner since 2005, has been upgraded and can now manufacture up to 6,000 RoughRiders per year. The Intco Machinery Company, Ltd. in Zhenjiang, China starts RoughRider production in December and has the projected capacity to make over 10,000 RoughRiders per year.

The bad news is that PT Dharma, our Indonesian manufacturer, was taken over and closed by a Japanese auto parts company. This shutdown follows nearly a year of production delays that caused a significant drop in the number of RoughRiders made and distributed in 2013. Fortunately, as the year comes to a close, we are back on track to resume our prior growth and to extend the benefits of the RoughRider to many thousands more wheelchair riders in the developing world.

Despite our setbacks, I can't help but feel good about how much we have achieved and the leadership role that Whirlwind is playing around the world. We are especially proud of our just completed four-year Georgia project. To learn more about this project, please see the article on page 6.

We are also pleased to report on progress made in our USAID-funded Wheelchair Provision and Assembly Center project. We have selected two pilot partners, and the grant-mandated hand-cycle trike is now in the prototype testing phase. See articles on pages 4 and 5 for more detail on these developments.

A great source of pride for all of us at Whirlwind is hearing from those whose lives have been changed for the better by our RoughRider. We're happy to share two such stories with you on pages 3 and 7.

Once again, we ask for your financial support. Although our income from the sale of wheelchairs to large donor organizations has allowed us to serve more and more people with better and better wheelchairs, we continue to depend on your donations to support new designs and product improvements.

Remember, *when you help Whirlwind, you help change the world.*

Sincerely,



**Marc Krizack**, Executive Director

## Taking on the Lindy Point Trail

Early this fall, two friends, Pitt and Ven, asked if I would be interested in joining them on a hike on Lindy Point Trail in Blackwater Falls State Park, West Virginia. This trail is approximately one mile of uneven basketball-plus-sized rocks, large boulder shelves, deep mud, ruts, and slippery tree roots. It would never be described as ‘wheelchair accessible.’

I’ve been a T8 complete paraplegic for less than a year and have been driven to make the best of my situation and be as adventurous as I can. I told my friend that I’d love to make it back to Lindy Point, but I was uncertain if this was realistic for just three of us. Even though I’d been wanting to take on Lindy Point Trail, I hadn’t planned to ride my chair out to Lindy unless I was with at least six people (to conduct a ‘litter carry’) if it simply was not *possible* to wheel myself out. My friends insisted that I join them, one saying “I’ll damn well carry you out myself if I have to.” I believed him, and we got ready to go.

The going was tough, and my gloves and arms got a punishing workout. While I absolutely love my lightweight chair, this situation called for my RoughRider®. All those long days of ‘advanced wheelchair skills’ training and physical therapy were paying off. My friends believed I could do this and firmly stated that they were *not* going to hold my hand. I appreciated that they understood this was a *challenge* that I wanted to take on and that I was interested in seeing exactly how much I *was* going to be able to do.

It was not easy. Even with attentive safety spotters, I did ‘go down’ a few times, but they were soft landings cushioned by the helping hands of friends and heavy, protective pants. Forcing my way across some of the worst imaginable terrain for a wheelchair reminded me more of a one-mile mountain bike trials course than of a normal day pushing a chair. In the end, I was able to make it out to the point almost entirely on my own.

**“I know I can count on my RoughRider to be a trusty ride.”**

I couldn’t have completed this trip in a chair without the support of my friends; they assisted me across the two-foot wide chasms separating the cliffs and over two of the worst boulder garden sections on the uphill return. But, we never came close to needing a ‘six man carry’ to make it back to the trailhead. All and all, it was another exhausting and wonderful, exciting afternoon in the rugged Potomac Highlands, and my Whirlwind RoughRider made that possible.

Wheelchair life in relatively inaccessible rural West Virginia is not easy, but my RoughRider has helped me to get through some of the deepest snow, roughest terrain, and most inaccessible buildings a manual chair rider could expect to tackle. The RoughRider—along with determination and the support of my amazing friends, family, and adaptive sports organizations—has made it possible to once again take on the challenges of the off-road outdoor world. Less than a year from my date of injury, I’ve been skiing, mountain boarding, road and mountain biking, and have rowed an adaptive oar rig down Class IV+ whitewater on the Lower New River.

I’ve found that there is lots of life to live after injury. I’m excited about my future in adaptive sports and helping others realize their own abilities. While I don’t know what the future holds, I know it’s bright and I’m determined to see just how far we can go. I know I can count on my RoughRider to be a trusty ride. Thanks to all of you at Whirlwind for the wonderful work you do and for making this practical, affordable, robust, repairable, off-road chair available to those who need it around the world. Keep up the good work!

*Eric is currently working with Challenged Athletes of West Virginia, plus individuals, non-profits, and businesses in his area to improve access for people with physical disabilities. He is also interested in creating a wheelchair users’ web guide to promote accessible tourism.*



*Eric with his friends, Pitt and Ven, at the end of the Lindy Point Trail.*

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Sincerely,

*Eric Thompson*



# Wheelchair Provision and Assembly Center Updates

## Whirlwind Launches the First Two WPACs

Wheelchair Provision and Assembly Centers, or WPACs, are organizations with staff trained and experienced in the World Health Organization (WHO) wheelchair provision guidelines and committed to providing high-quality wheelchairs in a sustainable manner. As such, WPACs are equipped to assess riders and their individual needs, assemble chairs based on those needs, fit each chair to its rider, conduct follow-up and then carry out necessary repairs.

In the past, Whirlwind worked with small organizations and taught people how to build earlier Whirlwind wheelchair models. While this small-scale approach provided much learning on both sides, our ability to reach riders in low-resourced environments and to manage chair quality was limited. Nearly two years ago, Whirlwind began searching for new and better ways to reach larger numbers of wheelchair riders, ultimately leading to the creation of the WPAC model.



After an extensive selection process, Whirlwind has chosen two pilot WPAC partners—Mobility Aid and Appliance Research and Development Center (MAARDEC) in Nigeria and Mobility Sierra Leone (MSL). Both have received start-up assistance through a USAID grant for training, business development, and operational support from Accenture Development Partners. Clinical training will be provided by UCP Wheels for Humanity Indonesia (UCPRUK) in Yogyakarta, Indonesia. Last month, managers from MAARDEC and MSL attended WPAC Provision Management Training at UCPRUK.

MAARDEC, with over 20 years' experience providing mobility aids to people in Nigeria, has established relationships with local governments in all 36 of Nigeria's states, the Federal Capital Territory, Abuja, and numerous non-governmental organizations. Last year, MAARDEC distributed over 1,500 wheelchairs with assistance from the MTN Nigeria Foundation. MAARDEC also continues to play a vital role in energizing Nigeria's disabled community and advocating for disability rights.

MSL, with five years' experience in wheelchair provision and manufacture, has been instrumental in providing access to wheelchairs and other mobility devices to riders in Sierra Leone. MSL's team, trained at the Tanzania Training Center for Orthopedic Technologists (TATCOT), has worked extensively with Sierra Leone's National and Regional Rehabilitation Hospitals, Handicap International, and World Vision in Sierra Leone. MSL looks forward to forming and expanding partnerships to better address the need for mobility devices in Sierra Leone and the surrounding region.

We are excited to be collaborating with MAARDEC and MSL and are also very pleased that the WPAC concept is attracting attention. We have already been contacted by Rotary clubs, foundations, and government agencies interested in setting up WPACs in their areas of operation.



*Left: MSL's Lamin Mansaray (center) and MAARDEC's Kingsley Izuogu (far right) learn about warehouse management and assembly from UCPRUK's Darmanto and Malia during the WPAC Provision Management Training in Yogyakarta, Indonesia.*



PHOTO BY LAURA HARRINGTON



### Propulsion + Maneuverability

- Cruising speed with a single-speed, front-wheel, hand crank drive
- Hill-climbing power with rear wheel pushrims
- Tight turning radius and centered steering, allowing two-hand pushrim propulsion
- Adjustable crank height
- Both running and parking brakes

### Seating

- Tension-adjustable backrest
- Seat back angle adjustable "on the fly"
- Adjustable seat height, angle, and position front to back



### Income-Generation Features

- Large cargo space under seat. Cargo accessories, including front rack, also available.
- Configurable with accessories designed for mobile business owners (awnings, food cases, overhead displays, ice chests, etc.)

### Manufacture + Repair

- Centrally manufactured to keep costs low; open-source design to encourage copies and improvements
- Standard bicycle parts in drivetrain, front and rear wheels, and steering

## Hand-Cycle Trike Prototype: Ready to Ride

Whirlwind is continuing to develop our new cargo hand-cycle tricycle under our USAID-funded Wheelchair Provision and Assembly Center grant. Optimized for income generation, our trike is specifically suited to riders who wish to carry cargo for their trike-based vending businesses without sacrificing maneuverability. After building and testing several designs this year, and collaborating with students at San Francisco State University, Hampshire College, and Carleton University in Ottawa, Canada, we've arrived at a design that we are testing with trike riders.

Three of our trikes are being tested this month by UCP Wheels for Humanity Indonesia (UCPRUK). Our three trikes are being compared to trikes made by the Kien Tuong Private Manufacture Wheelchair Co. (Vietnam), Lightfoot Cycles (USA), Personal Energy Transportation (USA), The Association for the Physically Disabled of Kenya, Motivation UK, and a popular Indian rear-wheel drive tricycle.

We look forward to learning a lot from riders participating in user testing and to improving the trike before we begin manufacture in May 2014.



*Above: Hand-cycle trikes being tested at UCPRUK include those made by (left to right) the Kien Tuong Private Wheelchair Company, Lightfoot Cycles, Personal Energy Transportation (PET), Whirlwind, and The Association for the Physically Disabled of Kenya (APDK).*



## Extraordinary Success in the Republic of Georgia



On August 23, 2013, the parliament of the Republic of Georgia, a country that was part of the Soviet Union until 1991, passed a groundbreaking resolution in support of local wheelchair production in compliance with new World Health Organization guidelines for manual wheelchair provision.

This legislation was the culmination of a four-year US Agency for International Development (USAID) project put together by the World Institute on Disability (WID). It included Whirlwind, the Georgian Coalition for Independent Living (CIL), and a number of other experienced professionals in the field of Disability and International Development.



Whirlwind helped to set up a wheelchair factory from scratch, and trained seven workers with disabilities, including five wheelchair riders. This factory can now manufacture 120 wheelchairs per month and is preparing its first international orders. We were also instrumental in developing the manufacturability of a quick-on-quick-off electric power add-on to the RoughRider®. Salam Hassan, an Iraqi wheelchair rider, had the idea, which was then promoted by WID's Bruce Curtis and implemented by Whirlwind's Sasha Afonin and CIL's Levan Talakhadze. The electric motors are in the rear hubs and the lithium-ion battery pack fits under the seating fabric. This power chair has performed admirably in Georgia, Morocco, Italy, Poland, Ukraine, Azerbaijan, and the US. It has extended the benefits of the RoughRider to a whole new range of people who are physically unable to use a manual wheelchair. The government of Georgia has already agreed to purchase 35 units, and the US Embassy in Georgia has ordered another 35 units to be distributed to internally displaced refugees.

International Seating Specialist Jamie Noon, a long-time Whirlwind colleague, worked with a children's rehabilitation center in Tbilisi, the Georgian capital, to introduce an adjustable seating system that can be inserted into a narrow RoughRider, converting it into a chair suitable for children who have special postural support needs.

In close collaboration with CIL, WID helped develop a new training and capacity-building program. This program greatly improved CIL's ability to provide wheelchairs in a manner compliant with WHO requirements and to affect public policy and legislation. The new Georgian legislation mandates that wheelchairs be provided with appropriate services and extends protections to people who receive wheelchairs, such as requiring that warranty repairs be made within seven days. One of the conditions for winning a government tender is that the winning agency must produce its wheelchairs in Georgia and must be able to show that at least half of its employees are people with disabilities.

This USAID project has achieved stunning successes in technology transfer and development, non-governmental organization capacity-building, and advocacy by and for people with disabilities in the Republic of Georgia. Wheelchair riders will benefit from good products, kids will benefit from appropriate fitting and other provision services, local people with disabilities will get jobs, and CIL will be able to build a sustainable business to serve the long-term needs of the Georgian disability community.

*Now able to join his friends going to and from school, a boy in his new RoughRider chats with Levan Talakhadze, Production Engineer at the Coalition for Independent Living in Tbilisi, Georgia.*



## "Will Power"



*Will Krajewski with fellow scouts on one of the new wheelchair-accessible trails they and their troop helped to build.*

When bone cancer struck Will Krajewski and transformed his life, his dream of going to the annual Scout Jamboree hung in the balance. But Will, a Scout since first grade, knew a thing or two about determination. "It was all gravel roads," says BSA National Jamboree Scoutmaster Wes Forgey. "A regular wheelchair, we knew, was not going to be able to traverse those roads." Will's fellow scouts rallied around him and funds were raised to get him a RoughRider®. As Will put it, "I was finally unstuck, I was free."

Will and his troop made it to the Jamboree, but their shared accomplishments didn't end there. For a service project, they worked as a team to help build wheelchair-accessible trails in the New River Gorge National River Area in West Virginia. Thanks to the scouts' "Will Power" wheelchair users will be able to fully enjoy this park for years to come. For a video of Will's story, visit [www.youtube.com/watch?v=as0fyZuyVrQ#t=105](http://www.youtube.com/watch?v=as0fyZuyVrQ#t=105)

## Nuts & Bolts

### Extending ISO to Developing Countries

This past June, Whirlwind hosted a symposium under the auspices of the International Standards Organization (ISO). This was the first time that wheelchair standards for developing countries have been made a part of the official ISO meetings. At subsequent ISO wheelchair standards meetings this past fall, the committee adopted the issue as a formal part of their ongoing efforts. Norman Reese, of LeTourneau University in Texas, is heading up the effort. Whirlwind will continue to participate in this process.

### The RoughRider Featured in Prime Time

We're proud that our RoughRider® was used by lead actor Blair Underwood in the pilot episode of NBC's *IRONSIDE*, a remake of the 1960s TV series. To view the *Ironside* pilot, go to [www.nbc.com/ironside/video/series-premiere-pilot/n41436/](http://www.nbc.com/ironside/video/series-premiere-pilot/n41436/)

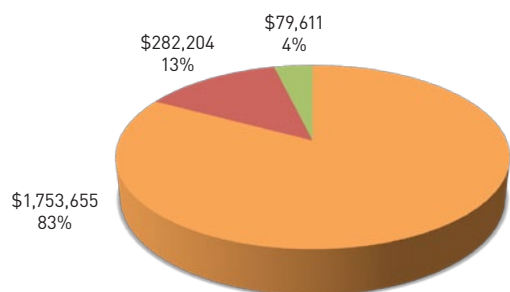


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## Financial Breakdown

### Income July 1, 2012 – June 30, 2013

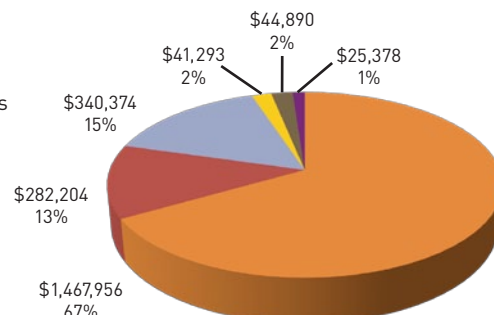
- Wheelchair Sales
- Government Grants
- Donations & Foundations



Total Income = \$2,115,470

### Expenses July 1, 2012 – June 30, 2013

- Wheelchair Sales (Cost of Goods Sold)
- Government Grants
- Non-Grant Personnel
- Non-Grant Travel
- Other Non-Grant Expenses
- Non-Grant Administration



Total Expenses = \$2,202,095



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Editors: Marc Krizack, Ralf Hotchkiss, Nancy Carroll • Graphic Design: Nancy Carroll  
Contributors: Marc Krizack, Aaron Wieler, Laura Harrington, Ralf Hotchkiss, Eric Thompson