Landmines form a barrier separating the Chobe region of Botswana from the upper Cuando and Zambezi Rivers. The Phaphamawangwitheke Kavango/Zambezi Transfrontier Conservation Area (KaZa TFCA) has been reduced to a fraction of its size by the landmine barrier. Surpassing 130,000, the elephant herd is increasing by approximately 5 percent each year, an unsustainable growth rate given the current confinement. The growing herd is disturbing local communities and destroying the surrounding environment by overgrazing the area.

Working with Conservation International, Roots of Peace plans to implement a program to open elephant access corridors, conserve wildlife and stimulate economic development. Roots of Peace will head a demining operation to remove landmines from historic elephant foraging areas, coordinating with the government of Angola, the provincial government of Cuando Cubango, and the U.N. Development Programme-Angola. Conservation International will then work on ecotourism development based on wildlife conservation within the Lusau Reserve. It is expected that the return of the elephants to these historic habitats will stimulate the economy through an increase in tourism in the area.

Harvesting Hope

The landmine situation in Angola has had a major impact on the socioeconomic state of the country. Landmines and UXO have blocked roads, bridges and access to farmland, resulting in an inability to meet domestic food requirements. Blocked access has also made it hard to provide medical attention and education on HIV/AIDS and mines, specifically in the war-torn provinces of Huambo, Bie and Benguela. Roots of Peace and World Vision seek to combine demining and redevelopment efforts, stimulating the economy and agricultural development. The project consists of three parts:

1. Clearing and rebuilding roads, bridges and other priority areas:
   - Roots of Peace will conduct a mine survey including mapping and education efforts. The organization will also demine and reconnect roads and bridges, opening access to regions in need of assistance.

2. Strengthening agri-business development and improving food security:
   - World Vision will focus on its already established Pro-Rural model program, as well as food security through subsistence farming.

3. Producing and exporting high-value crops:
   - Roots of Peace and World Vision will work together on this aspect of the project, executing a plan to grow and market high-value crops.

Bringing Back Security

Each project will raise US$10 million over the next three years. The long-term impact of the projects will be great, helping the people of Angola return to a self-sufficient lifestyle and preserving the environment. Working collaboratively with other organizations, the project headed by Roots of Peace are expected to enhance safety, security and stability of these regions.

Appropriate Prosthetic Technology

It has been well-established that high-tech Western prosthetic technologies are not always suitable for developing countries. The International Society for Prosthetics and Orthotics stressed the use of appropriate technology at its Consensus Conference in Cambodia1 and Tanzania,2 defining appropriate technology as “a system providing proper fit and alignment based on sound biomechanical principles [that] suit the needs of the individual and can be maintained by the country at the most economical and affordable price.”3 There are a significant number of efforts underway to develop appropriate prosthetic technologies for landmine-affected countries; however, many have been designed and produced without accounting for key factors such as the environment, local resources and culture.

Furthermore, many new technologies continue to rely on older methods and resources that still require a fully operational prosthetic clinic. It is necessary to develop new products and fabrication methods that do...
Focus: High biomechanical standards for prostheses

Appropriate technologies, the CIR operates a Rehabilitation Engineering Research Center on Improved Technology Access for Landmine Survivors. Funded by the U.S. Department of Education’s National Institute on Disability and Rehabilitation Research, the CERC carries out research and development, education and training, and technical-assistance services. Much of the CERC's work has focused on the development of assistive technology and prosthetic solutions for landmine survivors. CERC products and methods are designed for global applications; although researchers must work with limited resources, the new technology still adheres to high biomechanical standards for rehabilitation services.

The CERC has also developed multidisciplinary training modules for use in its technology transfer workshops and the CERC's distance-education program. Throughout all landmine-affected countries and the developing world in general, there are not enough qualified prosthetists to serve the many amputees. Currently, globally, larger numbers of technicians must be trained in order to meet the need for prosthetic services. A major goal of CERC's work is to help meet this need by providing educational materials and workshops to improve training opportunities for students and professionals in the targeted areas.

Development of the CERC Casting Technology

Along with the need for more training, another barrier to increasing prosthetic service delivery is the time-consuming, customization process of the prosthetic socket. In many parts of the world, traditional techniques, including the use of plaster of Paris are still being used for the fabrication of sockets. A major challenge in the casting and socket fabrication methods is that the prosthetist must cast the patient on the first visit, using a plaster bandage to obtain a negative mold of the residual limb. The CERC workshops, exemplifies how appropriate technology can be used to maximize time, money and resources at rehabilitation clinics. Using vacuum-power and sand in place of plaster, the system produces a positive model of the residual limb of a transtibial (below-knee) amputee for prosthetic socket fabrication in less than one minute. The practitioner can modify the positive model immediately in preparation for the fabrication of the customized prosthetic socket. The system drastically reduces the amount of labor and time previously needed for the prosthetic fabrication process; it also utilizes recyclable sand, lowering material costs.

Technology Transfer: Training

In Action

As the main regional prosthetic and orthotic center for eastern Africa, TATCOT offers a Bachelor of Science in prosthodontics and orthotics, as well as one- to three-year diploma and certificate programs in prosthetics and orthotics and a one-year course for wheelchair technicians. According to the United States Agency for International Development, graduates of TATCOT are currently employed in more than 19 countries. Additionally, the International Committee of the Red Cross created a program with the Tanzanian government that includes the provision of prostheses for up to 50 amputees each year. This program has been modified by the prosthetists involved in the CERC workshops. Finally, the socket is fabricated over the positive model. The entire process takes up to two days. These techniques require multiple visits between the patient and prosthetist, as well as non-reimbursable expenses such as those associated with the transportation of prosthetics.

The CERC’s Technology Center for International Rehabilitation and Technology Transfer (CIR) has been instrumental in the development of assistive technologies and prosthetics for use in developing countries. The CERC, based in Tanzania, has worked with a variety of international and national organizations to improve the delivery of rehabilitation services in Africa. The CERC has developed a network of organizations in Africa that can provide rehabilitation services to the many amputees in the region. In addition, the CERC has developed a network of organizations in Africa that can provide rehabilitation services to the many amputees in the region.

The CERC, which has been in operation for over 20 years, continues to work closely with organizations serving landmine survivors, the CERC has created a network of organizations in Africa that can provide rehabilitation services to the many amputees in the region. The CERC continues to focus on the development of assistive technologies and prosthetics for use in developing countries. The CERC has developed a network of organizations in Africa that can provide rehabilitation services to the many amputees in the region.

The CERC, which has been in operation for over 20 years, continues to work closely with organizations serving landmine survivors, the CERC has created a network of organizations in Africa that can provide rehabilitation services to the many amputees in the region. The CERC continues to focus on the development of assistive technologies and prosthetics for use in developing countries. The CERC has developed a network of organizations in Africa that can provide rehabilitation services to the many amputees in the region.